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Sustainable Food

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Additional written evidence

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The Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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The current staff of the Committee are Simon Fiander (Clerk), Nicholas Beech (Second Clerk), Lee Nicholson (Committee Specialist), Andrew Wallace (Senior Committee Assistant), Anna Browning (Committee Assistant), and Nicholas Davies (Media Officer).

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List of additional written evidence

(published in Volume II on the Committee's website www.parliament.uk/treascom)

Written evidence

Written evidence submitted by Dr Mirjam Roeder et al, Researchers, Sustainable Consumption Institute and Tyndall Centre for Climate Change Research, the University of Manchester

Executive Summary

This piece of evidence explores issues of sustainable food supply and demand as well as addressing various challenges evident within aspects of the food supply chain. Implications for supply chain actors are drawn out. The information provided is based on Sustainable Consumption Institute and Tyndall Centre research focussing on climate change adaptation and mitigation strategies for food and a related sustainability labelling thesis.

Main findings:

Emissions Implications

— Under climate change projections out to 2050, agricultural production in the UK will likely benefit from increasing yields.

— However, taking advantage of higher yields can only be realised with an increasing use of fertilisers, especially nitrogen, thereby increasing the UK's territorial emissions.

— This highlights a potential conflict between the UK wishing to reduce its territorial emissions, while taking advantage of its favourable climatic conditions, and low-emission intensity to increase agricultural production for export.

— If a consumption-based emissions accounting framework were to be considered in parallel to the conventional territorial framework, this would be able to account for a global benefit in terms of emissions, whilst the UK increases its share of global crop production.

Building Resilience

— Agriculture is more vulnerable to climate change than many other sectors, and must consider adaptation carefully to avoid further emission growth whilst taking advantage of favourable conditions for cereal crops.

— To reduce the volatility of the food system and also to mitigate and adapt to climate change impacts, proactive planning and monitoring is necessary.

Consumer Choice

— Effectiveness of labelling schemes largely depends on the legitimacy perceived by the actors (not only consumers, but institutions, NGOs etc) who then drive demand for and supply of more sustainable goods.

— Enhancing this legitimacy is a complex process.

— The consumer's role in driving the effectiveness of labelling schemes has been limited to date. Focus must therefore be broadened from individual consumers and manufacturers to other important actors such as retailers, NGOs, procurement bodies or civic organisations.

— Gaining legitimacy for any highly simplified form of communication around sustainable food (eg a label) is challenging and likely necessitates huge investments into the institutionalisation of a highly inclusive labelling and standard setting process.

— Not all decisions can be refined to a label that gives an obvious "sustainable" choice to the consumer.

— Alternative measures to consider might be stricter regulations on false environmental claims.

Retailers as Key Actors

— SME's may find it challenging to reduce their emissions due to a lack of available resource. Retailers and government are seen as having the potential to offer knowledge and expertise to help. Even actions with fairly short payback may not be attractive enough to encourage take-up.

— Many actors see retailers as key, either in facilitating or perhaps mandating change through the supply chain.

Introduction

1. The evidence presented here is based on research being undertaken at the University of Manchester within the Sustainable Consumption Institute, and linked to the Tyndall Centre for Climate Change Research.

2. One of the specific projects on which the evidence is based involves constructing a suite of emission scenarios focussing on the food supply chain. The context within which the scenarios are being developed contrasts the mitigation and adaptation challenges associated with a 2°C of warming by 2100 (Government target) with those associated with a 4°C of warming by 2100 (current track). Although the focus of the work

is climate change related, wider sustainable concerns are explored through stakeholder engagement and consumer focus groups.

3. The project takes a consumer-perspective on the issue by quantifying the full supply-chain emissions in addition to associated territorial emissions. In addition, scenarios are bounded within a cumulative emissions budget framework, as opposed to simply aiming for some long-term emission reduction target.

How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?

4. Climate change mitigation is an issue of cumulative emissions rather than long-term targets.[1] Therefore short-term demand-side measures rather than longer-term technologically-driven changes are often more beneficial from a climate impacts point of view.

5. Climate change impacts associated with the food we eat should be assessed by considering the various stages of the food supply chain to identify emission "hot spots". Moreover, given the nature of potential future climate impacts are uncertain, mitigation measures should be flexible to build resilience into the system.

6. One of the biggest challenges for cutting emissions from the food system is connected to the use of fertiliser, especially nitrogen, to deliver reasonable yields. In plant production, nitrogen is the most important nutrient for most crops, especially wheat which is the main crop in the UK, and has a high demand for nitrogen to produce sufficient yields and quality. The production of fertiliser is very energy and emission intensive.[2] Another major emission is N_2O emissions directly from soil resulting from transformation processes caused by microorganisms in the soil.

7. Nitrogen fertilisation is necessary to deliver required yields[3] but at the same time produces emissions. To reduce the environmental impact, alternative production methods for fertiliser can reduce emissions. Direct emissions from soil, which also contribute significantly to the global warming potential of agricultural production, can be minimised by efficient crop management such as soil-specific nitrogen application rates, sensitive timing and applications methods or the application of costly nitrogen inhibitors.

8. The annual production of around 15 million tonnes of wheat[4] makes the UK a major cereal producer in the EU. UK farmers achieve some of the highest yields for wheat in the world, a considerable portion of which is exported for a variety of uses. (However the development of emerging biofuel markets may change this in future).

9. Work carried out by the SCI/Tyndall Centre[5] considers different climate change adaptation options for UK wheat production. These involve the application of increased levels of nitrogenous fertiliser in order to access higher yield potentials under future climate scenarios with associated rises in CO_2 and temperatures. The results showed that the greenhouse gas intensity of UK wheat production per unit of wheat produced is unlikely to be significantly affected by such adaptation measures. However, this is subject to the increased yields being realised. Similarly, the prospect of increased climate variability (resulting in more extreme weather events) may in fact reduce yields in some years and subsequently result in some years which demonstrate an increased greenhouse gas (GHG) intensity of production.

10. Of more immediate concern is the extent to which the UK's national greenhouse gas inventory is likely to be exacerbated by such adaptation measures. The agronomic adaptation required to access higher yields may result in little difference in the specific greenhouse gas emissions per unit of wheat produced, but if the UK continues to devote the same area of land to wheat production, but increases yields, there will be an increase in the total agricultural greenhouse gas emissions.[5] On the one hand, it could be argued that it is imperative that the UK (with its high yields and efficient production) takes up the responsibility of supplying increasing quantities of wheat to service increasing global demands. On the other hand, doing so might jeopardise the UK's ability to meet its greenhouse gas reduction targets, if assessed using the conventional territorial framework. Making use of the alternative consumption-based accounting framework for emissions may be appropriate in order to identify if on a global scale, efficient production within UK territory for consumption both in the UK and elsewhere results in lower emissions globally than if a similar amount of food were to be produced outside of the UK.

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

11. From a climate change perspective virtually no other economic sector is as exposed to natural influences to the same extent as agriculture. Therefore, adaptation is essential to prevent or at least reduce negative impacts of climate change and take advantage of possible benefits for UK farming.

12. In the last decade early warning systems and monitoring mechanisms proved to be useful to stabilise food supply in food-insecure regions. As proactive instruments, such methods could help food producers and the food industry to diminish impacts and risk from climate change and prevent sudden "surprises". Monitoring and alerting instruments allow for better planning and adjustment of production and stock/storage systems and can avoid rapid short fall in supply and sharp price peaks.

13. "Affordable to all" does not necessarily mean low prices but a stable and fair economy with stable incomes and access for all to safe, healthy and sustainable products and diets.

How can consumers best be helped to make more sustainable choices about food?

14. From our research, the key issue to consider here is exactly what is meant by "more sustainable choices"? Products that deliver on one element of sustainability (eg fair-trade) may well not deliver on another (eg GHG emissions from airfreight). These sustainability trade-offs indicate that not all decisions can be refined to a label that gives an obvious "sustainable" choice to the consumer. Rather the consumer may have to interpret what is important to them in terms of sustainability and, in addition, balance this alongside issues such as price, nutrition etc.

15. One of the most prominent instruments to help consumers make more sustainable product choices has been product labelling, introduced by various actors. Among others the House of Commons Environmental Audit Committee has called for "simplification, unification and verification of environmental labelling, preferably into a single sector-based, universal scheme incorporating different key elements"[7] to address what has arguably become a confusing labelling situation for consumers and businesses alike. In regard to this call there are different things to consider for the food but also other sectors.

16. Based on research of existing product labelling schemes we found that their effectiveness largely depends on the legitimacy perceived by the actors driving both the societal demand for, and the supply of, more sustainably produced products.[8] Enhancing the perceived legitimacy of a labelling scheme is a complex process including input and output related as well as moral, pragmatic, and cognitive dimensions.

17. Due to multiple barriers on the micro, meso and macro levels, consumers' direct demand for more sustainably produced food and other products and their role in driving the effectiveness of labelling schemes has been limited, although should not be totally neglected. Individual consumer power has been repeatedly utilised indirectly (in a sense of individual consumers being mentally prepared to discriminate among products because of concerns related to sustainability issues) by NGOs to pressure companies to transform their supply chains towards sustainability. Next to individual consumers procurement bodies are increasingly seen as an important source of strategic demand. On the supply side, labelling schemes have been often used to symbolise to consumers and other stakeholders companies' broader CSR commitment. At this point, businesses that inhibit the lead position within the supply chain and have the power to pull or push the rest of the supply chain are of key importance. When looking at the effectiveness of product labelling schemes it is therefore crucial not to focus only on individual consumers and manufacturers but also other important actors such as retailers, NGOs, procurement bodies or civic organisations.[8]

18. In the light of the above sustainability trade-offs and the complexity of the sustainability agenda in general, the prospects for gaining legitimacy for any highly simplified form of communication seems challenging. If possible to achieve at all, it would probably necessitate huge investments into the institutionalisation of a highly inclusive labelling and standard setting process.

19. Alternative measures to consider might be stricter regulations on false environmental claims as is found for example, with organically grown food, to strengthen existing schemes rather than implementing new ones.

20. There are also many problems and inherent limitations related to the implementation of labelling schemes in general and a simplified, universal sustainability label in particular. It is therefore crucial to accompany labelling efforts by other measures such as green public procurement, education, incentivising measures and choice editing.[9]

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

21. The demand for food is expected to increasing globally by 70% until 2050 [10] due to population growth, urbanisation and structural changes of societies. According to global climate change projections food production in regions in higher latitudes is likely to be favoured while yields in lower latitudes are likely to decrease and production might even be impossible.[11] This means that especially in regions with increasing demands, production will be very limited and a greater number of countries will rely on a few main producers. With this outlook food producers in the northern hemisphere, need to maximise their yields to maintain the global supply. To maximise yields, especially in case of cereals, higher levels of agrochemical use, particularly nitrogenous fertiliser, are necessary. This will increase the greenhouse gas burden associated with increased fertiliser production and N_2O emissions from arable soils associated with these more intensive production methods. This would result in substantial increases in the national emissions inventory in key producer countries such as the UK, which may act as a disincentive to increase production in these countries. If this were the case it could raise significant concerns about the ability of the global food supply to increase capacity in order to adequately feed a growing global population.[5] Changing environmental conditions, extreme weather events and unpredictable weather conditions, plant pathogens, pests and weeds will add to the pressures on agriculture.

22. Socio-economic impacts such as increasing prices for food and production factors, scarcity of/competition for resources (especially fertile land and water), changing demands and consumer perceptions will increase the pressure for all sectors and a sustainable food system.

23. Small and medium enterprises (SMEs) may find it challenging to effectively reduce their emissions due to a lack of available (personal or financial) resources. Retailers and government are seen as having the potential to offer knowledge and expertise to help reduce the level of GHGs associated with SME activities. The day-to-day survival pressures on many SME's mean that even actions with fairly short payback periods may not be attractive enough to encourage take-up.

24. From our stakeholder research, it is clear that many actors see the retailers as key either in facilitating or perhaps mandating change through the supply chain. Clearly this is a sensitive issue with many suppliers already feeling pressure from reducing margins and the current economic climate.

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17 March 2011

Written evidence submitted by Jo Ripley

Sustainable Food Inquiry

Food and agriculture probably have an enormously important impact on:

- Biodiversity.
- Climate Change.
- Energy Use.
- Water resources.
- Flood management.
- People's health.
- Animal welfare.
- Social and economic diversity.

How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?

1. *To ensure major GHGE reductions from our food, we must move from chemically intensive systems that are heavily reliant on fossil fuels to low chemical-input agriculture.*

(a) This will help rebuild up the carbon in the soil that has been so seriously eroded by industrial farming practices.

(b) This in turn will help make farmland able to retain more water and therefore reduce irrigation requirements and reduce flooding risk.

(c) It will help restore our global biodiversity.

(d) It will reduce the emissions of nitrous oxide emissions, a powerful greenhouse gas. The manufacturing process for Nitrogen fertiliser is not only highly energy intensive but causes the emission of large quantities of nitrous oxide.

(e) We need to move to extensive farming and away from intensive animal systems that rely on huge areas of the world's cropland, as well destroying biodiverse-rich land like rainforest, for producing intensive monoculture feed crops.

(f) Intensive systems do not feed the world's poor as stated in the recent UN report: Agro-ecology and the Right to Food, which calls for a fundamental change to our approach to food production; from intensive agriculture, where any short-term gains will be offset by the long-term losses of further destruction of ecosystems undermining future production, to agro-ecology farming.

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

2. *The Common Agricultural Policy must support farmers to produce food that is both healthy for people and helps restore the health of global biodiversity.*

Essentially this is only possible if meat makes up a far smaller part of our diets. Meat and animal products need to come from animals that are extensively reared, resulting in healthier products, (see below: Economic and Social Research Council report *Eating biodiversity: an investigation of the links between quality food production and biodiversity protection)* and greatly reduced pollution risks to ground water as is associated with intensive animal production.

3. *Nearly half of the world's cereal crop is grown for animal feed.*

Clearly diverting much of this cropland towards primary food crops for direct human consumption will increase the capacity to "feed the world". This would also result in reduced meat consumption in the western world's diet—in line with health recommendations.

4. Millions of pounds + has been spent cleaning up results of industrialised farming. This costs the taxpayer but does not affect the price at the checkout.

Governments need to be bold about the truth behind the true costs of "cheap food" in terms of its:

(a) Damage to biodiversity.

(b) Negative impact on climate change.

(c) Unsustainable reliance on fossil fuel.

(d) Unsustainable reliance on water in a world with shrinking water resources.

(e) Soil erosion.

(f) High costs related to food scares arising from industrial food production; eg water pollution and BSE.

(g) Unhealthy properties (eg heavy dependence on antibiotics, chemical residues).

(h) Lack of health-giving properties:

"Eating biodiversity: an investigation of the links between quality food production and biodiversity protection" (award number: RES-224–25–0041), a study funded by the Economic and Social Research Council. The research was carried out by Professor Henry Buller and Dr Carol Morris at Exeter University, Dr James Kirwan at Gloucestershire University, Professor Jeff Wood at Bristol University, and Mr Alan Hopkins and Dr Robert Dunn at the Institute of Grassland and Environmental Research. The project was part of the Rural Economy and Land Use Programme (RELU).

Chemical analysis showed that the meat from animals with a more biodiverse diet was healthier too. Meat from wild-grazed lambs, particularly those grazed on heather, had higher levels of the natural antioxidant, vitamin E, than meat from animals grazed on improved grassland. It also had higher levels of healthy fatty acids including the long chain omega 3 fatty acid, DHA, thought to play a key role in brain development and to protect against heart disease. And higher levels of the anti-carcinogenic compound, conjugated linoleic acid (CLA) were found in meat from lambs grazed on moorland and Longhorn cattle grazed on unimproved pastures than in control meat.

The researchers undertook detailed fieldwork on 39 farms where farmers had specifically sought to graze their animals on natural grasslands. The fieldwork included ecological surveys of pastures, farmer interviews and business surveys and, in a sample of farms, meat analysis, taste panels and consumer focus groups. Control farms operating more intensive livestock systems were used to compare the nature of the grasslands (species numbers and variability), the farm management practices and, where appropriate, the product characteristics.

5. *Food must be affordable without compromising vital ecological services and infrastructure.*

The costs to our economic system that will result from wide-ranging impacts of climate change were spelt out in the Stern Report.

Provide fiscal support for sustainable agriculture; if taxpayers money is not having to pay for the external costs resulting from industrial agriculture it will redress the balance between the prices of sustainable produced food and intensively produced food.

6. *Encourage more and more people to grow their own produce*.

Many allotments have been sold off over the past decades and this needs reversing.

The survey http://www.transitiontownwestkirby.org.uk/files/ttwk_nsalg_survey_2010.pdf May 2010 of allotment waiting lists held by English principle Local Authorities (LAs) showed no sign that the increase in the demand for allotments is slowing down; waiting lists are long and getting longer. Total waiting lists for sites where data was available increased from 76,330 the previous year to 94,124 while only 483 plots in new allotment sites were brought into use by LAs. This demand is reflected in the great interest in the national Landshare scheme: www.landshare.net

The benefits of increasing the number of people growing their own are many:

- Health—exercise and increased access to fresh vegetables.
- Low carbon food production—low food miles.
- Community and social benefits.
- Source of productive work in time of rising unemployment.

7. *Carbon should be costed such that it reflects all external costs of production, transport, retail and packaging*.

Extend carbon trading of quotas to individuals; this would not hurt the poorer in society whose carbon footprint is generally smaller.

How can consumers best be helped to make more sustainable choices about food?

8. *Honest labelling*—a food's "origin" can mean that it is labelled as UK but have come from meat from animals reared in countries with lower welfare and environmental standards (undermining our producers) because of an unspecified "last substantial change"—which might be that is was re-packaged in the UK.

The recent survey by the Local Government Regulation (LGR) found that almost a fifth of products they inspected claiming to be "local" were making false claims. Testing 558 products labelled as "local" in 300 shops, restaurants, markets and manufacturers, the LGR found that, of these, 18% of "local" claims were "undoubtedly false", with a further 14% unverifiable and so assumed to be false.

9. *Publicize the costs of intensive agricultural systems and food produced by such means reflecting these costs*.

10. *Run a public awareness programme to explain reasons for not affording "cheap" meat and need therefore to reduce our intake* (in line with health recommendations).

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

I would think that intensive animal production presents the biggest problems—for reasons already stated.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

How could Government procurement practices be improved to promote better practice across the food sector?

11. *Local authorities and public bodies, eg the NHS, should be encouraged to source local produce of high animal welfare and environmental standards through having statutory low carbon budgets*.

I have been concerned with food and food production for many years. I have run a small Farmers' Market for almost 12 years and have been involved in a number of other ways promoting agriculture that is produced to high animal welfare and environmentally sound standards. I am also on the Steering group of a community group, Marlborough Climate Pledge (www.climatepledge.org.uk) that encourages people to reduce their

personal energy use in five key areas: energy, food, transport, waste and water. We have a small Community Allotment for people to have a mini-plot for a couple of years to put their hands to growing.

22 March 2011

Written evidence submitted by the RSPCA

SUMMARY

— The RSPCA believes that the consumer and government can play an important role in demanding and pulling through sustainable food policies on animal welfare but this can only be delivered with clear and transparent information and clear policies.

— A number of examples such as the procurement policies of the 2012 Olympic Games and Hampshire County Council show what can be delivered through central policies.

— The egg sector clearly shows the response effect from consumers to clear mandatory information and this should be delivered in other livestock sectors.

1. There a number of different policies and factors that are affecting sustainable agriculture and impacting on a producers' decision as to which product and at what standard it should be produced. Food 2030 sets out the goal of having a sustainable food policy with high animal welfare standards in a global context by 2030; in 2009 government policies focused on securing global food security by 2050 against the challenges of climate change and rising food inflation and the part UK farmers can play. In the next year a number of legislative agreements to improve animal welfare by phasing out or improving certain close confinement methods of farming in Europe will be enforced; some countries will be applying different levels of standards. Directive 1999/74 will phase out the conventional battery cage system for laying hens from 1 January 2012, but it is apparent that a number of the leading egg producing countries in Europe, unlike the UK, will not be ready for this change over. Standards for chicken farming, contained in Directive 2007/43 have come into effect, leading to farmers in England and Wales (unlike those in Northern Ireland) producing at a higher welfare standard than those in some other European countries. Pig standards will be harmonised from 2013 and the higher welfare standards in the UK in pig production banning the use of stalls and tethers that have operated from 1999 will be brought in to line with other countries. Then there is the backdrop of reform of the Common Agricultural Policy and possible tariff reductions under an agricultural agreement under the Doha Round of the WTO. There is a real opportunity both from government and consumers to help producers with these changes.

2. British consumers have consistently stated that they consider animal welfare to be an important issue when choosing food and that they do not wish to purchase food that is imported from countries using lower standards than in the UK.[1] In addition many close confinement systems such as those phasing out the sow stall and the prohibition of the veal crate system were prohibited in the UK before they were phased out in Europe. So it is important for British producers and farmers using these systems that they are not undercut from products from systems using lower welfare standards, either inside or outside the EU-27. To achieve this from a consumer perspective, clear information is required through labelling. To achieve this from a central and local government perspective clear standards and procurement practices need to be laid out and followed that promote sustainable farming.

3. Labelling makes it possible for consumers to make an informed choice about the products that they are buying and for producers of higher welfare standards to gain due recognition for this and recover some of their increased production costs in the market place. Higher welfare food products are often difficult or impossible to distinguish from lower welfare alternatives, so clear labelling is required as a mechanism to differentiate the products on the basis of animal welfare criteria. The EU is considering a European labelling scheme, as part of its present Animal Health and Welfare strategy,[2] looking at harmonising rules on voluntary labelling on animal welfare provenance.

4. Polling clearly shows that there is a disconnect between what the consumers are demanding and what retailers are giving them. For instance 65% of the British public surveyed in the first Eurobarometer on animal welfare said that they would be willing to pay a price premium for eggs from welfare friendly systems[3] but 87% felt that food retailers do not provide enough information on welfare conditions and 89% felt that clearer labelling on livestock production methods should be provided to indicate animal welfare conditions. The pressure on retailers to offer competitive prices can often conflict with moves to improve animal welfare and highlights the need for clear Government direction on labelling. Greater and quicker switches by consumers could occur if retailers were required to label clearly the welfare provenance of all livestock products.

5. At present the Government's position is to seek country of origin labelling, which may encourage localism but would necessarily enable greater transparency on how the product was produced or give the consumer the information they are seeking on animal welfare. Mandatory labelling on method of production would achieve this. Where there has been mandatory labelling of production method, for eggs, this has resulted in a clearer

[1] Eurobarometer No. 229 June 2005 Attitudes of consumers towards the welfare of farmed animal; Eurobarometer 270. March 2007. Attitudes of European citizens towards animal welfare.

[2] European Commission. Action Plan for animal welfare 2006–10.

[3] Eurobarometer 229/63. 2 June 2005. Attitudes of consumers towards the welfare of farmed animals

operation of the market place. For instance in the UK sales of free range eggs increased from 22% of the market share in 2001 to 30% in 2005, after mandatory labelling was introduced in 2004. Barn eggs' market share remained constant in the same period and the share for caged eggs declined from 70% to 63%. Indeed there was a 6% increase in market share of free range eggs in the two year period after mandatory labelling was introduced in January 2004 compared to a lower increase of under 2% in the preceding three year period, highlighting the effectiveness of a mandatory labelling scheme.

6. Mandatory labelling was introduced after voluntary schemes failed to provide consumers with clear transparent information. A voluntary labelling scheme for shell eggs existed for over 10 years in the European Union but research showed that consumers were still confused about the provenance of eggs on sale. The problem was that there was no incentive for lower welfare eggs to list their method of production as this would reduce consumer demand. Use of labels with phrases such as "farm" or "country fresh" increased consumer confusion.

7. The RSPCA agrees that government can play a much more central role in encouraging the use of higher welfare food in its procurement standards. We supported the Government's move this year to introduce for the first time under the Government Buying Standards (GBS) a sourcing policy based on animal welfare. The RSPCA feels that if Government are to play a role in pulling up standards the policy should be aspirational and set higher standards. The Government's own research shows a correlation between membership of an assurance scheme and lower risk of compliance problems with existing legislation.[4] So a policy of only buying from producers that are members of an assurance scheme would not only set a good baseline but would also encourage better enforcement of legislative standards. This would not be overly burdensome to industry. For instance in the chicken sector it is projected that over 80% of chicken produced in the UK is produced under ACP assurance standards. In the meat sector over 90% of British pigs are sourced from Assured British Pigs and over 75% from Assured British Meat. The Government should then be encouraging a set percentage of policies to be above baseline eg using higher standards such as free range eggs or RSPCA standards that are used in assurance schemes such as Freedom Food. This is already being trialled at the 2012 Olympic Games.

8. In 2010 the London Organising Committee on the Olympic Games announced its sustainability procurement policy, the first time this had been set for an Olympic Games on animal welfare grounds. This will ensure that any eggs sold at any Olympic venue are free range and will also ensure that at least 20% of chicken and pork products being sold are also produced to higher welfare standards such as those used by Freedom Food. This is a clear example of how procurement standards can be used to raise animal welfare, ensure that British products are used and still deliver sustainable food at an affordable cost to a major event.

9. Government also have a duty to ensure that their own sourcing standards in their restaurants and canteens are delivering at least the same as the baseline legislation. The House of Commons banqueting policy, which covers the restaurants and receptions held there, is to provide free range eggs and is studying extending this policy to include a set percentage of Freedom Food pork and chicken products. However the House of Lords banqueting policy does not have any higher welfare standards in its policy. In 2010 the Welsh Assembly Government buildings in Cardiff agreed a new procurement strategy, which includes buying and selling 100% only free range eggs, chicken and salmon produced to RSPCA welfare standards. This was done after extensive consultation with the staff at the WAG buildings the vast majority of whom voted to approve new procurement standards.

10. Local authorities have been slower to produce standards, but where they have been enacted they can play an important role in encouraging localism and good animal welfare. For the past three years all eggs used in Hampshire schools and care sector establishments have been free-range as well as being sourced locally. In 2010 Hampshire's customers used 725,000 local free-range eggs, not only providing an opportunity of a policy that encourages better animal welfare standards but also local production.

23 March 2011

Written evidence submitted by Great Green Systems Ltd

Executive Summary

1. *Introduction*

(a) Approximately 50% of household food waste is "avoidable"; to reduce this figure will require behavioural change in the population. In addition an alternative disposal method to the use of centralised plants, which avoids using landfill where organic waste contributes to methane production, would be beneficial.

(b) A solution to the two problems above would lead to a reduction in the number of centralised waste processing plants required, change the public's overall attitude to household waste and improve the level of recycling.

[4] University of Warwick. 2010. Study to assess if membership of a farm assurance scheme affects compliance with animal welfare legislation and code. Defra project AW0510. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16613 accessed 23.3.2011

(c) The home treatment of food waste, using Food Waste Digesters, achieves these objectives and is the best environmental and most economic method of disposal.

2. *The benefits of Food Waste Digesters*

(a) All food waste, including meat bones and dairy products, can be safely disposed of in householders' gardens.

(b) The patented design of the two primary units, namely the Green Cone and the Green Johanna, enable householders' circumstances relating to the desire for compost or no residue, positioning in the garden and the type of soil present to be met.

(c) The home disposal of food waste facilitates alternate weekly collection, prevents smelly wheelie bins and, since the residual waste is dry, improves the level of recycling.

(d) Householders become aware of the volume of their food waste which they then seek to minimise.

(e) Using Food Waste Digesters empowers residents to take responsibility for their own waste, this has been proved to change the attitudes towards waste of individual households.

3. *A preferred solution*

(a) WRAP acknowledge that the home disposal of food waste is the Best Practical Environmental Option.

(b) A number of County and Borough councils have already made the use of Food Waste Digesters an integral part of their waste strategy.

(c) Trials monitored by independent consultants over the last 10 years show the use of Food Waste Digesters to be efficient and economical.

(d) Over 80% of householders with Food Waste Digesters recommend them to friends.

4. *Conclusion*

(a) To collect garden and food waste unnecessarily, particularly in rural areas, when it can be safely disposed of in householder's gardens cannot be justified on either environmental or economic grounds.

(b) The pursuit of recycling targets at the expense of the minimisation and disposal of waste at source appears an unsound environmental policy.

(c) Government policy appears solely centred on the disposal of food waste using centralised plants; however, for households with gardens, there is a proven, environmentally better and more economical solution, namely the use of Food Waste Digesters. The use of Food Waste Digesters should be encouraged.

1. Introduction

The Government in recent years, through the offices of Waste and Resources Action Programme (WRAP), has done much to reduce the amount of food waste; the campaign "Love Food Hate Waste" was successful in persuading the public to be less wasteful when purchasing food. However, a significant element of the avoidable fraction continues to be present in the waste stream together with the unavoidable element. Only when householders see for themselves the total amount of food continuing to be wasted will there be an attitudinal change that will lead to a further significant reduction in the total volume.

During the last five years increased emphasis has been placed by the Government on the disposal of household food waste by means of centralised plants, for example Anaerobic Digestion and Energy from Waste plants.

The "waste hierarchy" should be the cornerstone of any waste management policy and sets out the order in which options for waste disposal need to be considered based on environmental impact. Under the "waste hierarchy" minimisation should be the primary focus of strategy since it offers the most sustainable and least expensive approach to managing waste.

To address the two problems of how to change the public attitude to food waste and to implement sustainable and economic measures for its disposal is a priority. It is therefore a concern that the home disposal of household food waste is not being promoted by the Government, despite the fact that WRAP considers home treatment to be the Best Practical Environmental Option and a number of County Councils promote this practice.

The disposal of food waste in the curtilage of the home can best be achieved by the use of Food Waste Digesters (FWDs) and this paper will show that these units offer the best environmental solution at the lowest cost and that their use causes a change in attitude of the public to both organic and inorganic waste which can only be beneficial. Thus it is suggested that the role of Food Waste Digesters in any integrated waste policy is being overlooked and needs to be addressed.

2. Food Waste Digesters

(a) *Introduction*

There are two types of household Food Waste Digester that have been marketed in the UK for more than 10 years. These units enable all food waste, including meat bones and dairy products, to be safely disposed of in householders' gardens. The patented design of the units, which are similar in appearance to traditional garden composters, ensures that the flow of oxygen over the waste is maximised and heat retained; thus the best possible environment is established for microbial degradation. The construction of the units together with their design features ensures that vermin are not attracted to the food waste and that their use is made simple for the householder.

(b) *The Green Cone*

The Green Cone, which requires to be dug into the householders gardens, converts all food waste into its primary components of water and carbon dioxide; the unit produces very little residue and needs to be situated in a sunny position with good drainage.

(c) *The Green Johanna*

The Green Johanna, unlike the Green Cone, is designed to accept green garden waste as well as all food waste and produces a rich compost; this unit is installed on the surface of the ground, preferably in a shaded location.

(d) *General*

The Green Cone and the Green Johanna complement each other in regard to a householder's requirement for compost or no residue, the availability of a sunny or shady position in their garden and the type of soil present.

Food Waste Digesters are the most natural way to dispose of food waste for those householders with gardens, together with being the most sustainable and economical solution to the disposal of this waste stream.

3. Benefits of using Food Waste Digesters

(a) *Environmental*

(i) Disposal of any waste stream at source in a safe, economic and effective way must be the common sense solution.

(ii) To reduce the amount of waste requiring to be collected, thereby minimising transport pollution, can only be beneficial. (It is accepted that reducing the amount of waste being collected and effectively re-cycled in centralised plants will result in the achievement of recycling targets being more difficult, however this is an argument which cannot be sustained on environmental or economical grounds.)

(iii) If waste is simply collected from households the residents have no incentive to reduce it. Since "pay as you throw" appears to be unlikely to be introduced in the short term then residents need other forms of encouragement to minimise their waste. FWDs result in individual householders taking responsibility for their own waste.

(iv) The reduction in the volume of waste requiring to be treated in centralised plants could lead to a reduction in the number of such units required.

(v) FWDs facilitate the less frequent collection of other waste and help to improve the cycling rates since the residual waste is dry and not contaminated with food waste.

(vi) FWDs are a totally natural and benign process.

4. Financial

(a) The cost of treating and disposing of food waste in landfill or centralised plants will rise. Oil and other transport costs are unlikely to fall and future increases in landfill tax have been announced. The cost of using FWDs is a fraction of alternative methods of disposal and this is particularly true in rural areas. If using FWDs enables alternative weekly collection of the residual waste to be implemented or retained the cost savings are even greater.

(b) The merit of having a single fixed cost, namely the purchase of a Food Waste Digester, is considerable in times of in inflation and uncertainty.

(c) Various cost analysis studies, effected by independent consultants, have been prepared that show the return of investment on Food Waste Digesters is usually between three and four years. The calculations take into consideration the capital cost of the units, the falloff rate as residents cease to use the units, the costs of transporting and disposing of the waste in centralised units.

5. Lead to a Change in Public Attitude

(a) It has been repeatedly proved that with the segregation of food waste from other residual waste the

public not only reduces the actual amount of their organic waste but recycles more of their residual waste. The use of separate food waste bins, designed to facilitate collection and treatment in centralised plants, has the same effect as Food Waste Digesters; however, even when strongly encouraged, less than 60% of residents participate in food collection schemes and participants are not consistent with always segregating their food waste, thus there will be food in the residual waste bins. Those residents who use Food Waste Digesters place all their food waste in the units.

(b) Food waste has been the one remaining element of the waste stream that has been outside the control of many householders. The single greatest advantage in the use of Food Waste Digesters is that they empower residents to take their own action with regard to the amount of food waste they produce and its disposal.

6. The Preferred Solution for many Residents

(a) Removing all organic matter from the waste waiting to be collected facilitates alternate weekly collections of the residual waste since this is dry and not a health hazard.

(b) Collection bins, which contain no food waste, are far less smelly with one less unit being required.

(c) Vermin are not attracted to the organic waste left out overnight.

7. A Proven Solution

(a) In England many councils have been promoting the use of FWDs for a number of years. In each case, before commencing to use FWDs on a large scale, the councils effected comprehensive trials which were monitored by independent consultants. County Councils such as East and West Sussex, Cornwall, and Wiltshire, together with a number of district and borough councils, regard the Green Cone and the Green Johanna as an integral part of their waste strategy. Other councils are reviewing their policies with a view to promoting the units.

(b) The trials, referred to above, also proved the units to be very popular with residents with over 80% of users recommending them to a friend after one year.

(c) Green Cones are beginning to be sold overseas with demand growing in Canada and the United States and early trials in Australia. In Northern Europe, primarily in Sweden, the Green Johanna, which carries the Nordic Ecolabel, has been the leading "hot composter" for many years and approximately 600,000 units have been sold over the last 10 years.

8. Conclusion

(a) To collect organic and garden waste unnecessarily when it can be readily disposed of in householder's gardens cannot be justified on either environmental or economic grounds.

(b) Ways must be found to promote the home treatment of food waste and encourage householders to reduce the amount of waste put out for collection. The introduction of waste arising targets would facilitate this and have the effect of negating recycling targets which perversely so often increase the amount of waste being collected.

(c) Local authorities should be required to consider the option of introducing home treatment when determining their waste strategies.

(d) The Government, through agencies such as WRAP, should offer advice and support relating to household treatment and the use of FWDs and not merely promote the collection and disposal of waste through the use of centralised plants.

23 March 2011

Written evidence submitted by the Woodland Trust

Summary

— We believe that sustainable food production is inextricably linked to a sustainable and resilient natural environment.

— In the medium to long term the greatest risks to food security are likely to result from issues around oil supply and climate change.

— Agricultural land use produces negative externalities but can also contribute towards developing ecosystem services.

— Sustainable food production must include the wider sustainability issues which flow from land use.

— Understanding waste is critical to increasing the sustainability of food production.

— Better application of existing technologies, particularly the integration of trees into farming systems, could improve agricultural adaptation and lead to increased production.

— New technologies should reduce the likely impact of food production on the environment.

General Remarks

1. The Woodland Trust is the UK's leading woodland conservation charity. We have three aims: to enable the creation of more native woods and places rich in trees; to protect native woods, trees and their wildlife for the future; to inspire everyone to enjoy and value woods and trees. We own over 1,000 woods and have 300,000 members and supporters.

2. We agree with the assessment in the Foresight report on the Future for Food and Farming[5] that we face a convergence of demand side pressures for increased food production, with greater competition for land, water and energy. The uncertainty created by climate change is likely to amplify these problems, as is political instability in many parts of the world, particularly those where water shortages are anticipated.

3. Greater frequency of extreme weather events is likely to increase the uncertainty of food production and lead to years in which there is serious global undersupply.

4. We believe that agriculture and sustainable food production are inextricably linked to a sustainable and resilient natural environment. Although an increasing global human population puts pressure on agricultural land and water resources to produce the food needed, this must be achieved whilst maintaining or increasing natural capital.

5. Agricultural land use and other parts of the food production cycle produce negative externalities eg greenhouse gas emission, but can also contribute towards developing ecosystem services eg flood mitigation. Sustainable food production must include the wider sustainability issues which flow from land use. Whilst this will have implications for the way in which agricultural land is managed, we do not believe it should result in a drop in production

6. Our particular interest is in the way in which agriculture and food production impacts on biodiversity of the UK's trees and woodland, and the contribution which tree and woodland cover can make towards sustainable land use, including supporting sustainable food production.

7. Nonetheless we recognise that sustainable production and food security require consideration of all parts of the food supply chain.

Climate Change

8. Climate change is predicted to lengthen the growing season across the UK, with increased summer droughts particularly in the south and east, but milder winter temperatures and higher winter rainfall especially in the west of the country.[6] There is likely to be an increase in severe weather events including heat waves, higher intensity rainfall and storms. This will have consequences for both livestock and arable producers.[7]

9. A 2009 survey showed that half of all farmers already believe they are being affected by climate change, and over 60% expect to be affected in the next 10 years.[8] All sectors see climate change presenting more risks than opportunities.

Dependence on Oil

10. Modern agriculture is dependent on oil, not just as a fuel source but in the production of pesticides and fertilisers, and in processing, packaging and distribution of food. Sustainable food production and distribution in the UK is strongly associated with issues around energy security, illustrated dramatically when supermarket food stocks began to run out after just one week of the fuel tanker driver strikes in 2000. In our view in the medium to long term the greatest risks to food security are likely to result from issues around oil supply and climate change.

Waste

11. Waste in the food chain also has a major impact on sustainable food and Greenhouse gas (GHG) emissions. The UK wastes around 6.7 million tonnes of food every year, around a third of all food bought for home consumption.[9] Some is recycled but most goes to landfill where contributes to the creation of methane, a powerful GHG.[10]

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[5] Foresight, *The Future of Food and Farming* (2011) Executive Summary. The Government Office for Science, London.

[6] UK Climate Impacts programme, available at: http://www.ukcip.org.uk/index.php?option=com_content&task=view&id=41&Itemid=142

[7] Commission for the European Communities (2009), *Adapting to climate change: the challenge for European agriculture and rural areas*, Commission Working Document, available at: http://www.uknlo.gov.uk/docs/DG%20Agri%20Working%20Document.doc

[8] Forum for the Future, available at: http://www.forumforthefuture.org/node/3029

[9] Telegraph online, Gordon Brown puts the spotlight on supermarket food waste, available at: putshttp://www.telegraph.co.uk/money/main.jhtml?xml=/money/2008/07/08/ccfood108.xml, [accessed 17 March 2011]

[10] Ventour, L (2008). *The Food we Waste,* WRAP, available at: http://wrap.s3.amazonaws.com/the-food-we-waste.pdf, [accessed 17 March 2011]

12. Improved understanding of the impacts of waste through all parts of food production, processing, distribution and consumption, would increase the sustainability of the food produced and reduce GHG emissions.

Diet

13. Increasing wealth across the globe is leading to more meat consumption with concomitant greater demand for animal feed. This puts more pressure on land for crop production, and increases GHG emissions from livestock. We recognise that diet is a matter of personal choice and can be deeply culturally embedded. However, dietary changes, in particular lower meat consumption, could contribute towards increasing the sustainability of food production and reducing GHG emissions.

New Technologies

14. Maintaining production will mean more research for new technologies which can protect crops and livestock and maintain or increase production. We support the need for further research provided it takes proper account of the risks of new technology to human health and the natural environment. Wherever possible new technologies should reduce the likely impact of food production on the environment. For instance, through reducing the need for crop spraying with pesticides, or reducing reliance of crops for irrigation. Reduced pesticide use could also contribute to making it easier for wildlife to move through the landscape.

15. Genetically Modified (GM) crops have been particularly contentious. Whilst we recognise the potential benefits which might come from GM crops, any future commercial release needs to be supported by clear evidence that GM crops will not hybridise with other species, and will not harm ecological food webs or spread in an uncontrolled way.

16. Should it be decided that GM crops are suitable for release we would argue for tight regulation and monitoring of the farming systems under which they are grown to ensure delivery of environmental benefits eg genuine reductions in use of agrochemicals.

Integration of Trees into Farming Systems

17. In addition to the need for research on new technologies, we strongly believe that better understanding and application of existing technologies could improve agricultural adaptation to climate change and lead to increased production. At the same time it could also support wildlife and the delivery of ecosystem services.

18. Thoughtful integration of trees into farming systems could improve the sustainability of food production through lowering energy use and reducing or mitigating negative externalities of farming.

19. Simple–to-use technologies, such as tree planting have fewer barriers to adoption than some new technologies and could increase the sustainability of food production. Whilst this requires some trade-off in terms of land for farming, we don't believe this is significant in area, particularly when set against wider sustainability benefits.

Mitigating GHG Emission

20. Agriculture is responsible for around 7% of UK GHG emissions.[11] There are a range of measures which farmers can take to mitigate emissions, dependent on the farming system. These range from changes to agronomy, particularly tillage practice and fertiliser application, management of animal waste, slurry digesters to reduce methane emission, and on-farm renewable energy production.

21. The planting of trees on farms, for whatever purpose, will have some benefit in sequestering atmospheric carbon. In addition shelter for housing and buildings can reduce energy consumption and CO_2 emissions. Windbreaks of trees can improve the heat budgets of houses and buildings by 10–40%.[12,13,14]

22. The use of woodfuel as a renewable energy source both for farm use, and for sale will displace fossil fuel use and reduce the carbon footprint of agriculture.[15] The use of native tree species has the added benefit of supporting biodiversity, important in its own right, but also to create a diverse and resilient ecosystem to support agriculture, particularly pollinating insects.

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[11] DEFRA, *Farming—agriculture and climate change*, available at: http://www.defra.gov.uk/farm/environment/climate-change/

[12] Tabler, G T, *Windbreaks for poultry farms*, University of Arkansas, Division of Agricultural, Cooperative Extension Service, available at: http://www.thepoultrysite.com/articles/384/windbreaks-for-poultry-farms

[13] USDA National Agroforestry Centre, Conservation Buffers, Energy Conservation: site, available at: http://www.unl.edu/nac/bufferguidelines/guidelines/4_opportunities/7.html

[14] Jones, B W; Oreszczyn, T (1987). The effects of shelterbelts on microclimate and on passive solar gains. *Building and Environment*. 22:,

[15] *Woodfuel—introducing the benefits*, Forest Research, available at: http://www.forestresearch.gov.uk/fr/infd-66sj5v

Water Quality

23. Agricultural land use has a major impact on water quality and quantity. Winter rainfall has increased throughout the UK over the last 40 years with greater frequency of very heavy rainfall.[16] This increases the risk of runoff from agricultural land which affects both the probability of flooding and the level of sedimentation and pollutants entering water courses. This has subsequent impacts on wildlife and fisheries, and downstream energy costs in purification.

24. Woodland can reduce floods from hill slopes and in headwater catchments. The use of buffer strips of trees alongside watercourses and contour planting of trees and hedges can help reduce sedimentation and runoff of manure and fertiliser following heavy rainfall.[17] Studies at Pont Bren in Wales found soil-infiltration rates were up to 60 times higher under young native woodland than heavily grazed pasture.[18]

25. Woodland buffers have been shown to reduce the concentration of nitrogen carried in overland flows of swine lagoon effluent over a distance of 30 million.[19] Improvement in water quality reduces downstream costs for water purification.

26. Trees provide the added advantage of offering dappled shade to watercourses which reduces water temperature and is associated with improved oxygen levels in the watercourse to the benefit of fish and other wildlife.[20]

Air Quality

27. Trees also capture both gaseous and particulate pollutants from the atmosphere.[21,22] Livestock units, particularly intensive poultry and pig unit, emit ammonia and methane, a powerful GHG. Trees located close to livestock units are able to intercept a part of these emissions through dry deposition on the leaf and bark surfaces.[23] The high leaf surface to ground area ratio of trees, and electrostatically charged leaf surfaces makes them particularly effective and scavenging air borne pollutants.

Shade and Shelter

28. Tree planting and woodland creation to provide shade and shelter for livestock can improve feed efficiency through reduced heat stress in summer and less windchill in winter.[24] Shelter from trees can have a positive impact on pasture growth and has been shown for instance to increase lambing percentage and yields of wool from sheep reared in sheltered pastures.[25]

29. The shade from trees is not necessarily in conflict with productivity of pasture, as the shelter effects can provide positive benefits by increasing water infiltration and reducing evapotranspiration loss from pasture.[26] In addition the trees can produce timber, fodder and bedding for housed livestock.[27] The latter can have cost advantages over straw bedding and has been shown to reduce the release of volatile nitrogen compounds into the air.

30. The Woodland Trust has been working for a number of years with Sainsbury's and the Woodland Egg Producers to promote free range egg production in newly created woodland.[28] Through linking the product to increased animal welfare, new woodland has been created which will have wider benefits in carbon sequestration, capture of pollutants, biodiversity etc.

31. Windbreaks are already extensively used for shelter of top fruit and might be used more extensively for other crops. An increase in the frequency of storms creates greater need for crop shelter to reduce physical

[16] Environment Agency, "Rainfall in summer and winter", available at: http://www.environment-agency.gov.uk/research/library/data/34301.aspx

[17] https://www.scotland.gov.uk/Topics/Rural/SRDP/RuralPriorities/Packages/CornBuntings/WaterMarginsandEnhancedRi

[18] Carroll ZL, Bird SB, Emmett BA, Reynolds B, Sinclair FL (2004). "Can tree shelterbelts on agricultural land reduce flood risk". Soil Use and Management, 20, pp. 357–359

[19] Hubbard, R K, Newton, G L & Ruter, J M (2007). A farm-scale test of nitrogen assimilation by vegetated buffer systems receiving swine lagoon effluent by overland flow. Transactions of the ASABA, 50, pp. 53–64 available at: http://ddr.nal.usda.gov/bitstream/10113/10721/1/IND44014172.pdf

[20] Forest Research, *The role of riparian shade in controlling stream water temperature in a changing climate,* available at: http://www.forestresearch.gov.uk/riparianshade

[21] Freer-Smith, P H, Holloway, S & Goodman, A (1997). The uptake of particulates by an urban woodland: Site description and particulate composition. Environmental Pollution, 95, pp. 27–35.

[22] Skiba, U, Dick, J, Storeton-West, R, Lopez-Fernandez, S, Woods, C, Tang, S & Vandijk, N (2006) The relationship between NH3 emissions from a poultry farm and soil NO and N2O fluxes from a downwind forest. Biogeosciences, 3, pp. 375–382.

[23] Theobald, M R, *et al*. "Potential for ammonia recapture by farm woodlands: design and application of a new experimental facility", *The Scientific World*, available at; http://www.cababstractsplus.org/abstracts/Abstract.aspx?AcNo=20023039112

[24] Slusher, J P, and D Wallace. (1997). *Planning tree windbreaks in Missouri*. MU Guide G5900. University Extension. University of Missouri-Columbia.

[25] Bird, P R (1988). *Financial gains of trees on farms through shelter*, the international forestry conference for the Australian Bicentenary 1988. Proceedings of papers contributed Volume II of V. Albury-Wodonga 25 April-1 May 1988

[26] Macaulay Land Use Research Institute, Agroforestry Forum, available at: http://www.macaulay.ac.uk/agfor_toolbox/manage.html

[27] Centre for Alternative Land Use (2005) *Woodchip for animal bedding and compost,* Technical Note, available at: http://www.calu.bangor.ac.uk/Technical%20leaflets/050104woodchipbeddingcompostrev3.pdf

[28] http://www2.sainsburys.co.uk/food/foodandfeatures/suppliers/woodland_eggs/happy_hens.htm

damage, water loss through evapotranspiration and to encourage crop pollination.[29,30] Wind related soil erosion can also be reduced on vulnerable soils (peaty and light soils in particular). Crop yields can be seen to increase as a result of use of windbreaks.[31]

32. In addition to the protection from physical damage to crops, windbreaks can increase the abundance of pollinating insects.[32,33,34] This is as a result of increased shelter, by acting as a food source and through the provision of breeding areas, particularly where windbreaks are integrated into hedgerows.

33. At least 39 crops grown for their fruit or seed are insect pollinated, and a further 32 need insects for propagative seed production.[35] The economic value to farmers of plant pollination by bees is estimated between £120 and £200 million per year.[36] Action to tackle declining numbers of pollinators needs to happen across the farming sector.

Wildlife Conservation

34. Ensuring the conservation of biodiversity is critical to maintaining the value and service functions of the natural environment.

35. Woodland, and especially ancient woodland, has been fragmented through clearance for agriculture over many centuries. Today woodland covers just 12% of the UK with native woodland representing just 4% of land cover, only half of which is ancient.

36. Creation of native woodland to buffer and extend existing habitat, particularly ancient woodland, can reduce external edge effects eg spray and fertiliser drift, and increase habitat resilience.

37. In order for species to move across the landscape in response to climate change the nature and quality of agricultural land is crucial. This includes both the way in which land is farmed—intensity and frequency of cultivation, periods of fallow, pesticide and fertiliser application and the types of crops—as well as other features integrated into agricultural systems. Targeted tree planting and woodland creation may also help the movement of species around the landscape as climate change alters their ranges.[37]

Conclusion

38. It is our strongly held view that a healthy and resilient natural environment underpins productive agriculture and sustainable food production. We believe that the integration of trees and woods into agriculture can support food production whilst also enhancing the delivery of ecosystems services. The land use trade-offs implied by this increase in tree cover are, we believe, insignificant when set against the benefits.

23 March 2011

Written evidence submitted by Shepton Farms Ltd

Executive Summary

Society on a global level is at a crossroads. Owing to the density of population in this country, we are at an exaggerated level, only escapable because of our relatively wealthy status within the world.

However, that provides us with both an opportunity to be in the vanguard of change, and simultaneously to educate and lead through education.

This country is like all others, within the West, requiring itself to curtail consumption and to live within the ecological means provided by this planet, and which we cannot afford to squander nor treat recklessly.

These key ecological supplies include soil, clear, clean and sufficient fresh water, oil and very much more besides.

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[29] *Smith, B D, and Lewis,* T (1972). "*The effects of windbreaks on the blossom-visiting fauna of apple orchards and on yield"*, Annals of Applied Biology, *2 Volume 72 Issue 3, pp 229–335. Published Online: Feb 26 2008 at*: http://www3.interscience.wiley.com/journal/119679793/abstract?CRETRY=1&SRETRY=0

[30] USDA National Agroforestry Centre, Conservation Buffers, Energy Conservation: site, available at: http://www.unl.edu/nac/bufferguidelines/guidelines/4_opportunities/9.html

[31] Sudmeyer, R, Hall, D and Jones, H, *The effect of tree windbreaks on grain yield in the medium and low rainfall areas in Western Australia*, Department of Agriculture and Food, Western Australia, available at: http://www.agric.wa.gov.au/PC_91078.html?s=1001

[32] Merckx, T *et al* (2009). Effect of field margins on moths depends on species mobility: field-based evidence for landscape-scale conservation, *Agriculture, Ecosystems and Environment,* 129 (2009) pp 302–309

[33] Merckx, T *et al* (2009). Optimising the gain from agri-environment schemes, *Agriculture, Ecosystems and Environment,* 130 (2009) pp 177–182

[34] http://www.unl.edu/nac/bufferguidelines/guidelines/4_opportunities/9.html

[35] The Bee farmers Association of the United Kingdom, *The economic value of bees,* available at: http://www.beefarmers.co.uk/articles/p2_articleid/5

[36] DEFRA, Farming Link April 2009, *Honeybees in crisis*, available at: http://www.defra.gov.uk/farm/contact/link/articles/0904/honeybees.htm

[37] Woodland Trust, *Space for Nature,* available at: http://www.treeforall.org.uk/AboutTreeForAll/WhyTreeForAll/Science/spacefornature.htm

A Brief Introduction to Oliver Dowding

I have been farming in Shepton Montague since 1976. Over that time I have farmed up to 1,400 acres. Conversion to organic status was undertaken in 1989, and has been maintained ever since.

I have held a number of public and representational positions. These include chairing the organic working group for the NFU 1999–02, and organic committee chairman 2002 until dissolution in 2003. I was on the NFU Council 1990–93 and 2002–03. I was also on DEFRA's Organic Advisory Committee, and their Advisory Committee on Organic Standards, 2003–07. I represented the South West of England on the Home Grown Cereals Authority's Research and Development committee for seven years until 1997.

Recommendations for Action

1. Accept that UK society is living unsustainably and beyond our means, in terms of ecological demands and agricultural capability to continue producing under current methods of production and volumes of output.
2. Government to lead by example.
3. Government to regulate and control excess, wanton waste, and squandering of resources at all points in the food chain. This to include imported food.
4. Individuals to accept their individual responsibility to be part of the solution, just as much as they are currently part of the problem.
5. Major public consumers to accept they have a responsibility to consume sustainably, and through so doing to educate others to follow their lead. These include the NHS, educational establishments and others.
6. All levels of society need to accept that the change isn't just about government needing to make changes, but accepting that we cannot continue to consume and waste as we currently do.
7. Agriculture has to accept that it must produce with a different agenda in mind, and therefore what it produces, what it consumes, and how it operates will all fundamentally need variation or wholesale change, and in some instances, rapidly.

The Full Submission

1. This inquiry is extremely timely. It comes in the wake of the Government's Foresight report, and at the same time as global commodity markets in many cases are setting all-time high levels, and food supply certainty being continuously scrutinised.

"How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?

2. I'm pleased to see that the reference is to "climate change" and not to "climate warming".

3. The impact of climate change is immeasurable, but appears to be accelerating, and of increasing ferocity. The impact is being felt in a growing numbers of countries, and can no longer be passed off as an "once in a generation" occurrence.

4. The inquiry makes no reference to the increasing pressure on food supply brought about by continual growth in global populations. The impact of growing numbers of people is relevant to this country, as we currently import large quantities of the food that we require, and the resources to produce the food we grow, and these are going to become both less available, and more expensive as the years pass. Furthermore, by continuing to consume these resources at current levels we are likely to further exacerbate conflict in areas of the world where they are currently found. We therefore have a moral responsibility to curtail our own demand.

5. To minimise the impact of our food choices on the environment, and concurrently upon climate change, there are a number of relatively straightforward policy options available. I readily accept that they are not policies that will be popularly welcomed, but I suggest that we are not in an era where we can afford to bow to "want", when the overriding priority is "need". Urgency is the name of the game. The longer we delay the start, the more painful the changes will become, in the heart of the society to coherently accept them and successfully transition.

6. To understand where change can be made, we need to address what we are currently producing and how this production happens. We need to also consider what we do with what we produce.

7. Figures available to demonstrate the proportion of food which is produced, and which we consequently waste, vary. There is clearly a difference between that food which is wasted and which was edible, and that which is discarded through such processing. The proportion of food waste within society has broadly stayed the same for the last 70 to 80 years. At the beginning of this period the waste occurred through inefficiency in harvesting, storage and transport. The waste now occurs largely voluntarily, with increasingly tight standards set throughout the food processing and retailing chains, which prevent large quantities of food produced from reaching the human food market. Furthermore, processing mechanisms also remove significant quantities of perfectly edible food.

Food is also wasted at several other points in the food chain.

- Grading out losses before reaching processing.
- Losses in the processing factories.
- Wastage in store, where food is not sold before statutory datelines dictate.
- Wastage in the domestic or other user locations, with more food being purchased than can be consumed before is passing best before dates etc.
- Wastage on the plate: people help themselves to more than they can consume, together with being fussy eaters.
- Regulations which control and forbid once accepted methods for recycling food waste.

The governments own WRAP estimates that we waste 8.3 million tonnes of food per year. Full details are available at http://www.wrap.org.uk/retail_supply_chain/research_tools/research/report_household.html

8. There is one other area of food waste which we cannot ignore, but which raises potential to offend. In the West, we waste prodigious amounts of food through over-consumption. This in turn has led to grotesque levels of obesity, with many consequential negative impacts upon society, food production demands, and much more. We cannot forget the impact on human health, and the consequences for the NHS which come with obesity, many of which are undoubtedly avoidable. Addressing this problem risks offending people, many of whom would consider it to be a "right" to consume what they like. Changing this pattern of behaviour will require prodigious amounts of educational and regulatory action.

9. I further suggest that, and this is particularly true on a global scale, we should be addressing how much agricultural grain and protein production is generated to feed livestock.

10. If we curtailed the amount of grain and protein fed to livestock, ideally to virtually none, the beneficial impacts would be enormous. I fully accept that they would cause upset to many established businesses, and to what we currently consider the established food production systems. By reducing the quantities of grain and protein fed to livestock, the enormous advantages would include:

- Huge reductions in the area of land required to be intensively farmed.
- Alternative uses for the land would become available, and broadly split into three areas:
  - Large areas could be reverted to grassland. This would have the beneficial advantage of reducing the land area annually tilled, and therefore dramatically cutting back the quantity of soil lost to erosion every year. Losing our topsoil is a crime against humanity, as it jeopardises the agricultural potential for future generations.
  - Significant areas should be afforested. This would have long-term benefits in stabilising global weather patterns, carbon sequestration, soil protection and preservation and much more. It would also act as an important source of future fuel, and other harvestable commodities.
  - The third important opportunity available through reducing the land used to grow crops to feed livestock would be through making this land available to grow crops to provide energy and other non-agricultural purposes. One would need to be sure that such crops had a positive energy balance, accounting for energy consumed and produced in the complete cycle of production and consumption.
- Changing agriculture in this way would cut back on demand for vast quantities of finite supplies of:
  - Phosphate fertilisers: currently these are predominantly sourced from a very limited number of countries, none of whom could be considered to be reliable long-term business prospects, and which principally include China, Algeria, Morocco and Tunisia.
  - Oil, gas etc.
    (a) We currently use hydrocarbons within agriculture to produce all the nitrogenous fertilisers, and nearly all the agrochemicals. We also consume prodigious quantities of these fertilisers and chemicals to produce the large quantities of arable crops simply to feed livestock.
    (b) Agriculture and the entire food production chain currently also consume huge quantities of oil, through things produced from oil, for transport, processing, packaging and much more.
    (c) It is often reported that one in four heavy goods vehicles are only on the road to fulfil requirements of the food chain.
  - Fresh water. Huge quantities of fresh water are currently used to irrigate crops, many of which are simply intended to feed livestock. With one of the 10 largest rivers in the world now not reaching the sea, action to preserve fresh water is increasingly critical.

How can the government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

11. By reducing the quantity of meat consumed by humans, we would radically reduce the amount of land required to grow grain and protein crops, particularly globally, and this land could be used for alternative uses, as outlined above.

12. The government should take responsibility for educating consumers of the wisdom, and by providing them with the means to understand their responsibility to make these changes.

13. By quite simply leading by example. There are huge numbers of government institutions sourcing and utilising food to feed people. By adopting best practice in all these areas, they would be setting the tone for the remainder of society to follow.

How can consumers best be helped to make more sustainable choices about food?

14. Principally through education.

15. Government will need to lean on retail and processing businesses. The most profitable lines for all these businesses are those with the most added ingredients, and often with the least connection to nutrition and health. Sadly these are often promoted as if they have exactly that connection, but rarely do.

16. Consumers need to understand the virtue of making changes for themselves, and for their fellow citizens, and that there is benefit in doing so.

17. Government should be undertaking to educate consumers that they will not suffer malnutrition if they do not eat as much meat as they currently do.

Which aspects of the food production and supply chain present the biggest problems for the sustainability of the food industry?

18. In simple terms, those utilising the most non-renewable resources in both production and processing, distribution and retailing.

19. Any area which creates waste is working against sustainability. Therefore we need to investigate waste at all levels within the food chain.

20. If we have a food system which consumes more raw materials that it returns whence they originated, ie the land, we have unsustainability.

21. Cropping of "organic soils", generally referring here to peat soils, is hugely exploitative. With many such soils losing up to 2–3cm in depth with every year of cropping, their lifespan is limited.

22. Cropping methods on any soil which compromises its quality or existence has to be changed. We cannot afford to squander the most basic of resources for feeding the people on this planet.

23. The processing chain currently wastes enormous amounts of food, perfectly edible, but removed whilst chasing a utopian goal in terms of presentational appearance. We cannot afford this luxury any more.

24. The individual consumer is a wasteful point in the food chain. We have to better educate them to both not waste food in the preparation stages, to not over cater and therefore create waste of perfectly edible food, and most importantly not to over consume, and therefore eat more than their "fair share" from the global larder.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

25. Any authority or large purchaser of food has a responsibility to act sustainably. By ensuring they lead by example, and more importantly by then publicising how they have done this, they act as an important part of the chain of inspiration.

26. We have to accept that it is highly unlikely that this country of approaching 65 million people, widely considered to be the fourth most densely populated in the world, will not be able to feed itself from its own resources. However, we do not need to import anywhere near the levels of food that we currently do to make up this shortfall.

27. Through explaining to people about personal responsibility to the wider communal and national picture, there is a better chance that the "filter down" message will be heard, and positive action consequently taken.

28. Local authorities should be better able to coordinate educational and collaborative exercises to illustrate to people within communities how they can proactively and positively enhance agenda's targets. As with so much within this policy area, it's all about education, explanation, exhortation and exemplification. There are plenty of people who already strive to do the right thing, and if they are harnessed they could become a powerful focus for those who have yet to understand that they have a role to play as well.

How could government procurement practices be improved to promote better practice across the food sector?

29. Government could do so much to lead by example.

30. Through explaining to their own people, and with around 25% of people working within state funded organisations at some level or other, there are plenty of people to act as the beacons for others to follow.

31. Government should also be explaining to people why this change is necessary, and that they too have a role to play in making it successful.

24 March 2011

Written evidence submitted by the World Society for the Protection of Animals (UK Office)

SUMMARY

- Sustainability involves ecological, economic and ethical responsibility.
- Humane treatment of animals fosters sustainability and vice versa. Sustainability cannot be achieved without proper, humane management and care of farm animals.
- Livestock management has impacts on animal welfare, food security, disease control and environmental protection.
- Livestock production contributes significantly to environmental problems and is inefficient for feeding people compared to crops, in use of energy, water, land and other resources.
- For the UK, reduced production and consumption of animal products is needed.
- For most UK consumers, a healthy, humane, sustainable diet will include a smaller proportion of animal products, some of them substituted by non-animal protein.
- Meat and other animal products should be sourced more locally and more humanely. There should be less emphasis on cheapness and a change in attitude to regard these products as more "special." This will reduce both waste and overeating.
- The retail sector needs to establish shorter supply chains, more regional and seasonal variation in its sales, and more long-term contracts for farmers (increasing security, re-investment and improvement of farms).
- The UK needs to support smaller farms, integrating crop and animal production to recycle nutrients, with humane, "animal centred" management of livestock.
- Increased food self-sufficiency is necessary for both sustainability and food security, not only for the UK and its constituent regions, but also for all other nations, especially developing countries currently reliant on food imports.

GENERAL

1. The World Society for the Protection of Animals (WSPA) has offices in 13 countries and works with a network of more than 1,000 animal welfare organizations in over 150 countries. WSPA holds consultative status with the United Nations and observer status with the Council of Europe. This submission is from the WSPA UK office.

2. WSPA welcomes the opportunity to comment on the environmental and social consequences of the way the food we eat in the UK is produced and sold. Our concern is primarily with livestock (including poultry and fish).

3. Achieving sustainability involves *ecological, economic and ethical* responsibility. Ethical considerations (of both people and animals) have sometimes received less attention than ecology and economics, but are an essential part of the acceptability and applicability of policies. And all three of the Three Es lead us to consider animals, because animal management has impacts on vital issues such as food security, disease control and environmental protection.

4. The Foresight report on Global Food and Farming Futures addresses requirements for food sustainability. However, it does not clarify the distinction between actions that can and should be made at a national level (by the UK and other countries) and those at an international level (for which mechanisms need to be sought such as coordination by the UN's Food and Agriculture Organisation). The report too readily "rejects food self-sufficiency as a viable option for nations to contribute to global food security" (p13). In fact self-sufficiency is not all-or-none, and the impacts of livestock production on the degree of self-sufficiency and other aspects of sustainability are important considerations for every nation.

5. The Foresight report also suggests implicitly what was explicit in the Food 2030 report published by the UK Government in 2010: that the UK should increase production greatly to help "feed the world." Secretary of State Caroline Spelman has said:

> "We need to start building into our whole supply chain the capacity, the resilience and the sustainability we will need to feed a projected world population of over nine billion people by 2050."[38]

However, whether exporting helps or hinders food security of other countries including developing countries is a matter that needs considerable analysis. Secretary Spelman has also suggested another motivation in saying that there is "significant scope for us to grow our (UK) industry in the years ahead." Profit is a reasonable

[38] Anon 2010 Caroline Spelman on food security. http://www.eurinco.eu/agricultural-policy-and-cap-reforms/caroline-spelman-on-food-security.html

motivation, but it is insufficient justification for increased production if that increase causes major problems. Neither Food 2030 nor the Foresight report call specifically for increased animal production, but both will doubtless be taken as encouragement for expansion by the livestock industry. In fact, while there is undoubtedly a global need for increased protein, that does not necessarily have to come from animals, and there is no demonstrated need for increased animal production in the UK. On the contrary, we argue below for reduced production and consumption of food from animals.

6. We are not suggesting that complete self-sufficiency is possible. We support the proposal from Oxfam and others (cited by Foresight) that, rather than exporting to low-income countries, we should import some food from such countries to support their agricultural and economic development—although this will have to be balanced against other policies favouring local and environmentally-sensitive sourcing, and might be more appropriate for crops than animal products.

7. Food security both in the UK and other countries is strongly affected not only by the total volume of agricultural production but also by the type of enterprises involved in that production. In many countries smallholder agriculture plays a crucial role in this, and we argue below that smaller farms also need support in the UK, both for food security and for other benefits such as rural employment and rural economies.

8. We shall now address your specific questions, with regard to UK livestock.

How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?

9. Livestock production contributes significantly to environmental problems:[39,40]

- Production of greenhouse gases (carbon dioxide, methane, nitrous oxide).
- Production of gases (ammonia, sulphur dioxide) that cause acid rain and acidification of groundwater.
- Other forms of water pollution (by nitrogen and phosphorus), and water shortages.
- Biodiversity loss and ecosystem change (which are driven by habitat change, climate change, invasive alien species, overexploitation and pollution).

10. Animal products are inefficient for feeding people, in respect of:

- Energy: The IPCC has said "A shift from meat towards plant production for human food purposes, where feasible, could increase energy efficiency."[41]
- Water: It takes 990 litres of water to produce one litre of milk.[42]
- Protein: The FAO has said that "Livestock now consume more human edible protein than they produce … This is a result of the recent trend towards more concentrate diets for pigs and poultry, with nutritional requirements more similar to humans than ruminants."[39]
- Land and other primary resources (although livestock may be a good use for marginal land as discussed below).

11. While some increase in efficiency of livestock production is possible, this will not be enough to reduce these problems significantly, particularly if production continues to increase. For the UK, reduced production and consumption of animal products is needed.

12. The Foresight report promotes "sustainable intensification." Unfortunately this does not distinguish between:

- Intensification "at the bottom end of the scale", which may be beneficial: for example, improved management of cattle browsing on poor-quality vegetation in developing countries; and
- Intensification "at the top end of the scale", which is harmful in both developing and developed countries for the reasons outlined in paragraphs 9 and 10, and is usually associated with increased production.

Most intensification in the current UK context would be "at the top end of the scale" and would not be sustainable. Intensification of livestock production in the UK has occurred in parallel with concentration (for example, management of more animals within certain watersheds), which has placed a burden on both the environment and the welfare of animals, with wider implications for competitiveness of local farmers. The Nocton proposal for a huge dairy farm in Lincolnshire would have been grossly damaging on all these criteria, and was rightly rejected for a combination of these reasons.

13. Intensive livestock systems are also associated with animal welfare problems such as high stocking densities and barren housing conditions that are unacceptable to most UK citizens. For this and the preceding reasons, a shift from one type of production (ruminants, predominantly extensively reared) to another (pork

[39] Steinfeld H *et al* 2006 Livestock's long shadow: environmental issues and options. Food and Agriculture Organisation, Rome.

[40] Leip A et al 2010 Evaluation of the livestock sector's contribution to the EU greenhouse gas emissions (GGELS)—final report. European Commission, Joint Research Centre. http://ec.europa.eu/agriculture/analysis/external/livestock-gas/index_en.htm

[41] Intergovernmental Panel for Climate Change 2001 Climate change 2001: Impacts, adaptation and vulnerability. IPCC third assessment report. Cambridge University Press, Cambridge.

[42] Chapagain AK & Hoekstra AY 2004 Water footprints of nations. Volume 1: Main Report. Value of Water Research Report Series No. 16. UNESCO-IHE p76

and chicken, predominantly intensively reared)—which is sometimes proposed—is not an effective solution, involving unacceptable trade-offs in terms of land use, emissions and animal welfare.

14. Reduction is particularly needed in (a) ruminants, (b) grain feeding and (c) use of land for livestock that could instead be used for arable crops. However, reduction in (c) must be balanced against the fact that use of pasture for livestock may benefit the environment, because pasture can contribute to carbon sequestration.[43] Much of the UK has good conditions to keep livestock on pasture, which can be seen as a competitive advantage. Livestock can also be kept on marginal land that is less useful for other types of agriculture.

15. We conclude that the UK needs to support mixed, less intensive farms, integrating crop and animal production to recycle nutrients, with humane, "animal centred" management of livestock. Support for such farms—which will tend to be smaller rather than larger enterprises—will also benefit policy priorities mentioned below such as localism and short supply chains.

16. Aquaculture causes particular problems for animal welfare, water pollution and the catching of wild fish as feed. Production of carnivorous species (including salmon and trout) should be restricted.

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

17. Government needs to work with the livestock industry to manage reduction and create a smaller sector making higher quality produce (more sustainable, with more humane production).

18. Government should promote a humane, sustainable diet (including non-animal protein). The Foresight report recommends that demand for the most resource intensive types of food must be contained, including animal products. Measures to reduce production and consumption in the UK are needed simultaneously. This should avoid putting UK producers at a disadvantage against international competitors.

19. Such changes, reducing meat consumption and increasing healthy diets will require a concerted effort. Government should collaborate with other appropriate stakeholders, investing in a programme of Human Behaviour Change to achieve this increasingly important outcome.[44]

20. As the UK does have to work in the international context, Government should also lead or join international initiatives to reduce production and consumption of animal products. In 2007 environment minister Ben Bradshaw suggested[45] that climate change may necessitate rationing of meat, cheese and milk. That is unlikely to be acceptable, but robust discussion of this sort is needed, leading to policies and real change.

21. Affordability of food is important, but that cannot be an excuse for across-the-board cheapness, including of meat. However cheap meat is, there will always be some food-poor people, so social policies to address that issue will continue to be needed. Most people can afford to pay more for food, including animal products.

22. Government should support research into artificial culturing of meat, which would be much less problematic environmentally.

23. Government also needs to work with other stakeholders in the food chain, as follows.

How can consumers best be helped to make more sustainable choices about food?

24. If rationing is unacceptable, much stronger public education is needed to explain the "next best alternative" of animal products being more expensive, consumed in smaller quantities and sourced more locally and more humanely. Meat and other animal products need to be viewed as more "special", helped by attention-raising initiatives such as "Meat-free Mondays."

25. Many consumers already have preferences for humane, local, sustainable livestock agriculture. They can be helped to express these by clearer labelling and by retailers providing information on their sourcing including the identity of individual suppliers.

26. Education and increased cost will also contribute to reducing waste of food. Cheapness of meat and other animal products must be a major contributor to both waste and to overeating, which is a factor in obesity and other health problems.

27. Education on diet is also important for health. In 2008 a government report[46] said "Evidence on health and the balance of environmental analysis suggests that a healthy, low-impact diet would contain less meat and fewer dairy products than we typically eat today." Such evidence continues to accumulate (eg an association between consumption of red meat and bowel cancer reported in February 2011[47]) and needs better coordination and publicity.

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[43] Intergovernmental Panel for Climate Change 2000 Land use, land use change and forestry. A special report of the IPCC. Cambridge University Press, Cambridge.

[44] WSPA undated Changing human behaviour, improving animal welfare. http://www.wspa-international.org/wspaswork/workinghorses/human_behaviour_change.aspx

[45] Anon 2007 Britain could go back to rationing. www.thisislondon.co.uk/news/article-23383454-britain-could-go-back-to-rationing.do

[46] Strategy Unit 2008 Food matters: Towards a strategy for the 21st Century. www.cabinetoffice.gov.uk/strategy/work_areas/food_policy.aspx

[47] BBC 2011 How much red meat should you eat? http://news.bbc.co.uk/today/hi/today/newsid_9407000/9407204.stm

28. However, we cannot expect consumers to sort out all the problems of achieving humane, sustainable agriculture. Consumers/citizens rightly expect others to take responsibility for matters such as environmental and animal protection, including government, farmers and retailers as appropriate.

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

29. The retail sector has excessive expectations of high volume, unified sourcing, for uniform supplies across regions and seasons. It also exerts too much pressure on livestock farmers to cut their production costs. There need to be shorter supply chains, more acceptance of regional and seasonal variation, and more long-term contracts for farmers (enabling them to plan for the future, re-invest and improve their farms). Many such changes could be positive for retailers: for example, regional and seasonal specialities could be promoted. Some retailers are already making positive moves involving such contracts, for example working with dairy farmers to improve health and welfare of dairy cows, and hence longevity and sustainability.

30. Some retailers have such a large market share that it amounts to a monopoly of a significant sector of the market. Monopolies undermine the bargaining power of smallholder farmers with retailers. Avoiding monopolies is important in maintaining the viability of smaller, family farms.

31. Promotions of cheap meat and other animal products to shoppers foster unreasonable expectations in consumers. Some such promotions contribute to waste: for example, "Buy One Get One Free" offers will lead to consumers taking more product than they need.

32. In the UK and other developed countries, retailers and food companies are, with consumers, responsible for the majority of waste. (Total waste is 30–40%, similar to that in developing countries, but in the latter it is concentrated at the beginning of the supply chain due to poor infrastructure for transport and conservation.[48]) Again this is influenced by undue emphasis in the retail sector on uniform supplies: insistence that no product line is exhausted means that some product lines are stocked in excess. Measures to curb and avoid waste by retailers and food companies should be considered.

33. Some supermarket chains have considerably improved their policies on humane and sustainable sourcing in recent years. Mechanisms should be found to persuade the remainder to follow suit.

34. Retailers sourcing from abroad should use consistent criteria, so that imports have the same requirements for welfare and environmental provenance as UK-produced goods.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

35. Increased autonomy of Scotland and Wales within the UK, and the powers of local authorities and regions within countries, are positive for sustainable production and supply of food. They can be used to encourage many of the trends recommended above, including more local sourcing (thereby supporting local jobs and economies), shorter supply chains and increased regional and national self-sufficiency. As discussed in paragraph 4, the Foresight report's dismissal of self-sufficiency as a goal appears to be on a misleading all-or-none basis. We urge recognition that increasing the degree of food self-sufficiency is necessary for both sustainability and food security—not only for the UK and its constituent regions, but also for all other nations, especially developing countries currently reliant on food imports.

36. Localism also favours use of local breeds and breeds adapted to local conditions, which is a valuable element in environmental sustainability, the resilience of farming systems and the welfare of animals.

How could Government procurement practices be improved to promote better practice across the food sector?

37. Purchasing policies for all those areas for which Government is in charge of or has influence over procurement (including local authorities, schools, hospitals, armed forces and prisons) should be consistent with and set an example for wider policies. Through these buying choices and through enforced standards for public purchasing, Government could drive an important change in food consumption: reducing food service reliance on meat and dairy products, promoting sustainable, local and welfare-friendly meat and dairy, ensuring "better but less" on the menu and enhancing the market for sustainable producers. This would also provide a concrete and long term opportunity for raising public awareness of the benefits of a more sustainable diet, as it will be possible to target many of these consumers—such as school children and military personnel—over a number of years. This change will only happen with central government standards, adequate advice, budgets and enforcement. It is well documented that a voluntary approach has failed to make long term positive changes in the procurement of sustainable food.

[48] UN Environment Programme 2011 Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. http://www.unep.org/greeneconomy/GreenEconomyReport/tabid/29846/Default.aspx

CONCLUSION

38. For all three aspects of sustainability—ecological, economic and ethical—livestock management needs to take into account their biology and natural behaviour.

Humane treatment of animals fosters sustainability and vice versa. What is more, sustainability cannot be achieved without proper, humane management and care of farm animals.

24 March 2011

Written evidence submitted by Susan Atkinson, Woodside Farm, South Nottinghamshire

1. The environmental and climate change impacts need to be addressed at a local level rather than the "one size fits all" policies that farmers now have to cope with that are set at national and/or EU level. Every farmer knows that no two fields are alike so needs policies that allow them to manage their farms in the best way possible and not have to try to fit them into schemes devised hundreds of miles away. The UK has a varied landscape and it all should be preserved though present schemes favour hedgerows only. Those areas that have stone walls or ditches as field boundaries need schemes that maintain these as they are all part of the country's history and traditions, as well as forming landscapes the general public enjoy. Any scheme should be reviewed very regularly as climate change has already demonstrated that no model is going to predict what will happen with any degree of certainty. As our farm is in the HLS scheme we have a very knowledgeable advisor from Natural England whom I can contact at any time and who knows our farm. Every farmer should have a similar advisor in the future to ensure each farm is managed in the best possible way under all climatic conditions. That will ensure the land produces as much as is possible for food and fuel.

2. No matter how much food is produced sustainably or how low the farmgate price, people will not make sustainable choices about food unless they are convinced that is the right thing to do and are able to live a lifestyle that enables them to do so. The population of this country hardly knows where any of the food it eats is produced or where it comes from. For decades they have been used to cheap food, with the average household spend on food consistently dropping as a percentage of income and are reluctant to accept a different scenario, especially as it involves lifestyle change. Cooking skills have declined so that many do not know how to cook using fresh ingredients. Many families never eat a meal together so in those situations it is not worth cooking a meal which only one person will eat fresh and the rest will re-heat or simply choose to throw away in favour of a fast food option. It is well known that people in the UK (at least those who have jobs) work the longest hours in the EU yet are the least productive. People need to be re-connected to the food system. The sales of vegetable seeds overtook those of flowers last year and this trend needs to be encouraged. As many people as possible should grow at least some of the food in gardens, allotments or other schemes. The media can be used to teach about food matters in general and explain just why habits need to change etc. If families started to cook using fresh ingredients and eating together it may help greatly in reducing the amount of food thrown away, which is another area of increasing concern. The scheduling move of the BBC's Countryfile programme has already caused people to think more about how food is produced judging by comments made to me.

3. No plan for the future can be made without taking stock of the present situation. The biggest problem for the sustainability of the food system in the UK is that agriculture is apparently in terminal decline in this country. The average age of UK farmers is 59, with about 30% already drawing old age pension and a dearth of young people entering the industry. For the last two years it has been estimated that UK farming needed 60,000 young people entering the industry within 10 years, which now makes it 60,000 in the next eight years. Otherwise UK agriculture could collapse altogether. Any further decline in farmer numbers risks the industry falling below critical mass, when so few farmers remain that the infrastructure supporting agriculture becomes uneconomic to run and so collapses, leading to further problems in the rest of the UK economy. There are ever fewer tenancies available and most land that is let is on FBT's that last for an average of five years. Land prices have risen dramatically as it is seen as an "investment" so unless a young person inherits they will not be able to buy land as even at the present high prices for cereals, the returns will not cover the mortgage repayments let alone allow anyone to make a living. Then there is the question of where they will live due to the equally high prices of housing in rural areas and, of course, a farmer needs buildings of various descriptions to house his livestock and machinery. If he does not live near to those buildings there is increased risk due to the rising levels of rural crime, which in turn increases the cost of insurance. In a country that aspires to owner-occupiers of property as the norm, it is useless to expect young people to stay in an industry that does not allow them to proceed up the property ladder to this goal, especially as so many tenant farmers at present cannot afford to retire.

4. On top of all this there is the general attitude to manual work in this country. Our young friends and relatives have told us that they have gone through their education being taught that manual work is only for those who are too stupid or too lazy to do otherwise. Added to this is the regulatory burden which has also increased dramatically in recent years. Farmers do not like being in the office—they would not be in the industry if they did not want to work outdoors and a high proportion are dyslexic. They also work long hours and the paperwork is a disproportionally heavy burden when faced at the end of a long day. It is the most multi skilled occupation and yet the return on capital is only about 3%, compared to 500% for Tesco. This means that, apart from the last couple of years, any farmer would be better off selling up and putting the money in the bank, so it is little wonder that farming parents have actively encouraged their children into other

occupations. Any young person who is likely to succeed in farming will succeed in any other occupation they enter, where they will enjoy a far better lifestyle and will probably aspire to and obtain a house with a few acres which they can enjoy.

5. As the UK has a largely urban population, it needs food to be affordable for all while at the same time ensuring supplies of food are maintained. The globalisation agenda that has been followed in recent decades is still regarded as being the best way to ensure this, with the mistaken belief that food would be produced most efficiently (ie cheaply) elsewhere while the UK became a "service" economy, with whatever farming that did survive here being large commodity producers or those supplying niche markets. The population was led to believe that there would always be plenty of cheap food available. Recent events are showing this is not the case but it will be a while before the majority realise it. Somehow the present system has to be altered into a more sustainable one without causing panic amongst the general public about food supplies when they are already under stress through rising fuel prices, economic recession and rising unemployment. That means all the facts need to be made public and any changes openly debated so that hopefully a broad consensus of opinion can be reached.

6. It is now recognised that farming produces public goods as well as food. In order to keep prices for food to the public down so as to benefit our urban populations, public goods should continue to be paid for from the public purse. However, that is all that should be paid for this way. The food farmers produce should be sold at a price from the farm that gives a reasonable profit to the farmer. The long overdue ombudsman should be in post as soon as possible and the present system that allows produce to leave farms at less than cost price stopped. It only adds to the profits of the already profitable supermarkets and food manufacturers while many farmers, who take all the risks in producing the food, live in poverty. Not only would farmers then have a decent standard of living, but in turn it would help with the governments stated aim of rebalancing the economy as farmers would have more money to invest in their businesses, which in turn would stimulate more jobs in the agricultural infrastructure and the wider economy.

7. The push towards ever larger, supposedly more "efficient" farms has also resulted in ever larger machinery being manufactured for such farms at the expense of implements suitable for smaller farms and fields. Small farms were encouraged to rely on contractors more and more as a means to be more efficient and to keep their costs down, or to form a machinery ring and share kit between several farms. Four wet harvests in succession have shown the weaknesses of these arrangements as combines have been unable to move from farm to farm as quickly as planned due to wet weather and ground conditions being too muddy to allow the large combines to operate. Many farmers were forced to watch as crops that were overdue for being harvested becoming blacker due to increasing levels of disease caused by the wet weather. This has resulted in farmers looking for older, smaller combines to buy, so that our 28 year old machine has now more than doubled in value from the price we paid for it in 2000. It is made by a German firm called Claas which in recent years has started making smaller combines again as it recognised the very large machines are not suitable for small fields as they would spend more time turning than working. The smallest combine in this new range is designed for farmers who grow about 120 acres of combinable crops, as we do ourselves, but as it is priced at £130,000 we will never be able to afford to buy one. If the UK landscape is to retain the pattern of small fields that cover most of it, farmers need to be able to find and afford to buy machines that are suitable.

8. The localism agenda will not succeed unless local authorities are committed to it themselves. If they do not source food etc from local suppliers but are driven by purchase costs only there will be a re-run of what has occurred at national level for many years, that is, the high animal welfare standards required in the UK put up the costs of UK farmers while government bodies such as the M.O.D. sourced the food it bought from abroad. Recent decades have seen the UK's self sufficiency in food decline while more and more has been imported each year that is produced by methods illegal in this country. If local authorities source foodstuffs from local producers and show benefits from so doing (costs and others) then the general public will be more inclined to follow suit. Government procurement practises also need to do the same thing.

24 March 2011

Written evidence submitted by the Wellcome Trust

Introduction

1. The relationship between food security and climate change is complex and an increasing priority on the global agenda. Interdisciplinary research will be needed to inform and develop appropriate and effective solutions for the production of healthy and sustainable food. As a research funder dedicated to improving human and animal health, the Wellcome Trust has a growing interest in this area and our 2010–20 Strategic Plan identified "Connecting Environment, Nutrition and Health" as one of five key challenges for the Trust. We will be developing our strategy in this area further over the coming years and we are pleased to have the opportunity to respond to this inquiry.

2. Food systems are global and while we appreciate that the focus of the inquiry is on sustainable food in the UK, it is important that the wider, international impacts of food policies are properly considered.

How can the environmental and climate change impacts of the food we choose to eat best be reduced?

3. There is an important synergy between diets that are both healthy and sustainable. A major international study, funded by the Trust, has demonstrated that certain policies for climate change mitigation can have positive impacts on health in both developed and low and middle income countries.[49] This modelling showed that a 30% reduction in livestock production could make an important contribution to reducing greenhouse gas emissions and an equivalent reduction in meat consumption in the UK may lead to health benefits across the population, for example a reduction in heart disease. It is important that evidence such as this is used to assess the full range of potential impacts of policies, particularly where these impacts span more than one sector or government department, such as health and climate change.

How can the government help deliver healthy food sustainability, whilst also delivering affordable food for all? How can consumers best be helped to make sustainable choices about food?

4. Adequate nutrition is an essential component of any sustainable diet and we are pleased that the Environmental Audit Committee has recognised this by including a reference to "healthy food" in the call for evidence.

5. In general, research into the efficacy of different interventions or policies is important to ensure that effective and appropriate strategies are adopted. An example of where this is likely to be particularly important is in behaviour change, since changes in consumer behaviour will be necessary in order for society to adopt healthier, sustainable diets.

6. The food and drink industry has an important impact on consumers' food choice. A range of approaches can be used to influence the food and beverage industry, from regulation to incentive and disincentive structures. The Trust is currently supporting the development of the Access to Nutrition Index (ATNI),[50] which will rate companies' performance in providing nutritious products to consumers. The ATNI aims to encourage the food industry to adopt best practices in relation to nutrition and is based on the "Access to Medicines Index" model,[51] which was designed to produce sustainable changes in practices in the pharmaceutical industry.

7. Providing consumers with the information they need to make healthy and sustainable choices is another way to promote change. Further research is likely to be needed to build on work to define a sustainable, healthy diet. Examples of recent work in this area include the *Livewell* plate created by the WWF[52] and the Food Standard Agency's work towards incorporating sustainability into the UK *Eatwell Plate*.[53]

The Wellcome Trust is a global charitable foundation dedicated to achieving extraordinary improvements in human and animal health. We support the brightest minds in biomedical research and the medical humanities. Our breadth of support includes public engagement, education and the application of research to improve health. We are independent of both political and commercial interests.

25 March 2011

Written evidence submitted by Dr Cathrine Jansson-Boyd, Senior Lecturer, Department of Psychology, Anglia Ruskin University

UNDERSTANDING CONSUMER DECISION MAKING: ONE APPROACH TO GUIDING CONSUMERS TO MAKE SUSTAINABLE FOOD CHOICES

Brief Biography of the Submitter: Dr Jansson-Boyd is a senior lecturer in Psychology at Anglia Ruskin University. She both teaches and researches different areas of Consumer Psychology. Some of her research interests include how to reduce energy consumption in vulnerable populations, how touch affect product evaluation and aesthetic product design. Cathrine has acted as a consultant for a number of companies and organisations (eg Coutts Marketing Communications, Office of Fair Trading and Disney) advising on various aspects of decision making, design, and branding. She has published in a number of scientific journals.

Executive Summary

- This report outlines a number of consumer psychology related techniques that can be used to encourage consumers to purchase sustainable food products.
- All the techniques outlined directly or indirectly influence consumer decision making.
- The paper is broadly categorised into three sections:
  1. The techniques that can be implanted to ensure that people pay attention to messages about sustainability.
  2. How to get people involved in sustainable consumption.

[49] http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Health-impacts-of-climate-change/Public-health-benefits-of-reducing-emissions/index.htm
[50] http://www.accesstonutrition.org/
[51] http://www.accesstomedicineindex.org/
[52] http://assets.wwf.org.uk/downloads/livewell_report_corrected.pdf
[53] http://www.food.gov.uk/multimedia/pdfs/updated20092011sdactionplan.pdf

3. Different types of persuasive techniques that can be implemented to convince consumers to purchase sustainable foods.

— Techniques to capture consumer attention include novel elements, colour, movement and where something is positioned.

— Consumers also pay more attention to information that they have a particular interest in.

— Getting people involved can be done through practically based involvement as well as emotional based involvement.

— Making messages about sustainability personally relevant, and to be seen to be important as well as making people feel personally responsible, are efficient methods when it comes to ensuring that people will think about what they have been told.

— A person conveying the message that sustainable consumption is important, needs to be someone who is deemed to be credible.

— Incentives can be utilised to alter and reinforce peoples' behaviours so that they are in line with sustainable consumption.

— Simply trying to change people's attitudes is not a guarantee that the preferred behaviour will follow suit.

— By presenting information in terms of gains vs. no gain, or losses vs. no loss, it is possible to manipulate consumer food preferences.

— It is important to identify possible barriers as to why people do not purchase sustainable foods.

— It is also important not to bombard consumers with too much information as it may not have the desired effect.

Introduction

1. A common problem in communicating with mass audiences is that it is difficult to get them to pay attention to the message and take it onboard. In today's society consumers are bombarded with information of which they only attend to a limited amount (eg Inman & Winer, 1998) and consequently it is essential to have an understanding for how consumers can be made to pay attention to and process particular information.

One of the main obstacles as to why it is difficult to communicate with mass audiences is due to that fact that it is difficult to capture consumers' attention in environments that are generally cluttered with competing information (eg Duncan & Humphreys, 1989, 1992; Eriksen & Spencer, 1969; Jansson, Bristow, & Marlow, 2004; Nagy, Sanchez & Hughes, 1990).

Another reason as to why it is difficult to capture consumers' attention is because it is guided by personal relevance (Shavitt, Swan, Lowrey & Wänke, 1994). If messages do not seem directly relevant to them or they have a different opinion, consumers tend to ignore the information they come across (eg Petty & Cacioppo, 1986).

It has been found that information alone is simply not enough to change people's behaviours to become pro-environmental (eg Jamieson & VanderWerf, 1993). Hence it is essential to look at persuasive techniques that can be implemented to encourage consumers to use food products that are produced sustainably.

The aforementioned suggests that what needs to be done to ensure that consumers have an interest in and purchase sustainable food products, can be broadly put into three categories, attention, personal involvement and persuasion techniques. This report explores how previous research within the area of Consumer Psychology can be utilised to produce a clearer picture of techniques that can be implemented to persuade consumers to be more pro-environmental in their purchase outlook.

"Grabbing" Consumers Attention

2. Regardless of the situation or environment, consumers tend to notice novel elements and/or something that is unusual (Berlyne & Parham, 1968). Though it needs to be remembered that noticeable novel stimuli are only easy to spot if they are surrounded by what is deemed to be "the norm". For example, imagine that you are handed four different leaflets about four different types of savings accounts. Three of the leaflets are of a similar size and printed mainly in black and white. However, the fourth leaflet is printed on a bright green paper. In such cases the consumer is more likely to notice the green leaflet and hence read that particular leaflet.

Colour is also something that can be utilised to capture consumers' attention (eg Mikellides, 1990; Wickens, 1992). The reason as to why colour is good at capturing people's attention is because it is easily detected by our pre-attentive system (Bundesen & Pedersen, 1983). It is worth bearing in mind that the success of using a particular colour to capture consumer's attention is dependant upon surrounding colours. So if you are hoping to use a bright red colour to attract attention to a particular product, and there are plenty of other bright red coloured products, it is unlikely that the target product will be noticed.

3. Another way to capture consumers' attention is by making use of some form of movement. Consumers have a tendency to pay attention to anything that moves against a static background (eg Dannemiller, 2000; Dick, Ullman, & Sagi, 1987; McLeod, Driver & Crisp, 1988). Movement tends to be a little bit more difficult

to utilise in terms of capturing consumers' attention. The easiest way to do it is in retail environments, where you can make use of displays that somehow includes movement. That way, customers in that particular in-store situation tend to notice the display with movement rather than all the other displays.

4. The likelihood of capturing a person's attention is also affected by where something is positioned. Research has found that the way in which humans visually search for information also guides our attention. Hence it is important to present *key* information in a location whereby it is rapidly spotted by the consumer. For example, if you provide consumers with leaflets about sustainable consumption, you should ensure that the most vital information is presented in the middle of the page. This being that it is generally the first spot that people look at. They then go on to search for further information in the same fashion as when we read (eg Jansson, Bristow & Marlow, 2004; Megaw & Richardson, 1979), ie they start in the top left corner, then scan towards the right (see Figure 1).

Figure 1

COMMON VISUAL SEARCH PATTERN IN WESTERNISED SOCIETIES

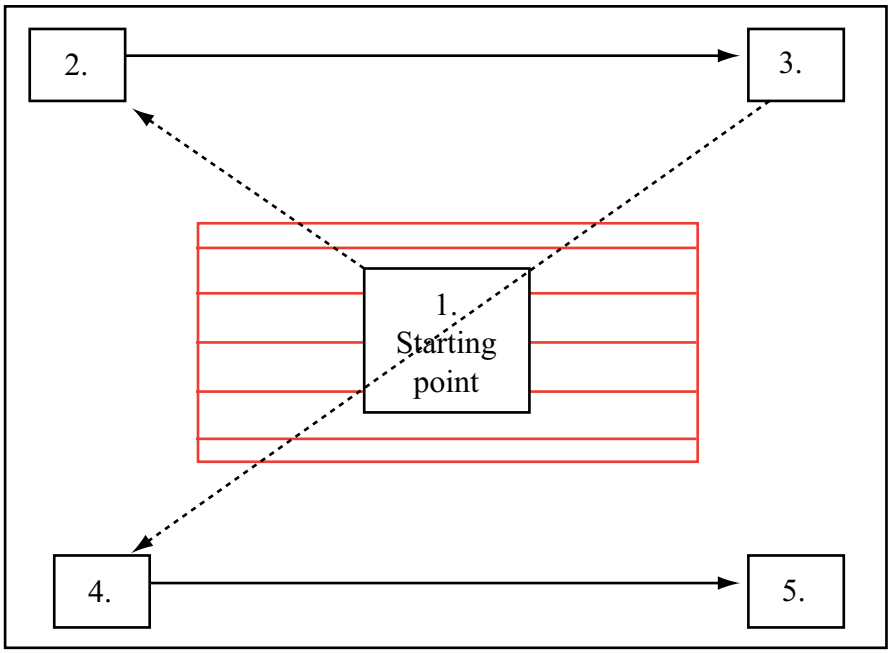

Figure 1 demonstrates how most individuals conduct their visual searches. Starting off by focusing upon the middle point, the individual can then also register the immediate surroundings (the central rectangular lined area). They then shift their eyes towards the top left and continue to search in a similar fashion to the process of reading.

5. Elements that are large, bright, colourful, have an unusual shape or blinking can override the visual search process, in that it may automatically guide a person's attention to it. In such cases they may not make use of the usual visual search pattern (Roggeveen, Kingstone, & Enns, 2003). For example, if you wish to draw an individual's attention towards something in particular on a leaflet, it may be a good idea to put it in a very bright coloured textbox that stands out from the rest of the leaflet. Similarly, within a cluttered retail environment you may wish to make your display larger than the others in order to draw the consumer's attention to it.

However, it is important that the unusual or vivid imagery used is consistent with the message itself (Smith & Shaffer, 2000). If it is not congruent with the sustainable message it may simply distract the consumer away from the message itself.

Try to Get People Involved

6. What actually captures a consumer's attention is also determined by other factors, such as what the consumer has a particular interest in. Such interests subconsciously guide the search process. If a consumer has a specific goal to start off with, that will affect the types of cues the consumer will pay attention to (Shavitt, Swan, Lowrey & Wänke, 1994). For example, when consumers have an initial preference for a brand, they pay more attention to information that confirm why they like the brand than they do to information that is inconsistent with why they like it (Chernev, 2001). It is generally also much more difficult (and at times impossible) to persuade consumers to do something if initially there is a big discrepancy between their original viewpoint or beliefs and a new idea presented to them (Petty & Cacioppo, 1986).

One way of getting people involved can be by involving them in in some way, such as in the planning of a project (Oskamp, Williams, Unipan, Steers, Mainieri, & Kurland, 1994). For example, cities with higher rates

of recycling participation and waste stream diversion have been found to place more emphasis on citizen involvement in both program design decisions and program participation (eg Oskamp *et al*., 1994).

A different type of involvement may also be achieved by using emotionally charged persuasive messages (eg Dahl, Frankenberger & Manchanda, 2003; King & Reid, 1990; Petty, 1995). If messages relate to something consumers care about, they are more likely to take action. It may be that emotional appeals can be used to create feelings of moral obligations, which can act as a powerful motivator to get consumers to engage in environmentally friendly behaviours (eg Hopper & Nielson, 1991; Stern & Dietz, 1994; Stern, Dietz, & Black, 1986; Vinning & Ebreo, 1992).

Persuasive Techniques

7. Personal relevance has the capacity to ensure that people think more extensively about the products that are being marketed. There has been a lot written about how you make consumers think about information presented to them (eg Cialdini, Petty & Cacioppo, 1981; Petty & Cacioppo, 1979; Petty, & Cacioppo, 1996; Petty, Cacioppo & Goldman, 1981). The literature proposes that to ensure that the message is fully processed and understood you should ensure that it is personally relevant, make people feel it is important and make them feel personally responsible.

(a) *Personal relevance*

Personal relevance has been found to be a fundamental variable that influences elaboration. A persuasive message should be presented in such a way as to increase perceptions of involvement, by use of personal relevance. On a superficial level it is possible to make a message personally relevant by using words such as "you" as supposed to "one" or "people". A famous example that plays on words in order to make the message personally relevant are the National Lottery adverts screened on television using the slogan "It could be you".

The best way to ensure that the message is personally relevant is to get to know your target market. Create a clear profile of the audience you are trying to reach. Research factors such as race, ethnic background, marital status, educational levels, and the kind of activities they participate in. By using such information you can analyse consumers' values, needs and already existing attitudes that are likely to affect their motivation to purchase particular items or services. It is particularly important to remember that various racial and ethnic groups do not respond uniformly to persuasive messages.

Using personally relevant information, perhaps by referring to a particular group of people, with which a person identifies, increases the likelihood of a consumer response. This was shown in a study whereby salespeople gave one of two pitches about cable TV to prospective customers. One sales presentation was the one normally used and the second one had been made more vivid and personal. During the personal pitch, people were asked to conjure up images of themselves watching a broader range of entertainment in their living rooms. The study found that people who heard the more personal appeal were more likely to install the cable TV (Yates and Aronson, 1983).

(b) *Make them think it is important*

Providing consumers with examples of why the message is important can make them want to engage further with the persuasive message. Simply telling them that it is important is not enough. So if you are trying to make consumers focus on a message that is trying to convince them to save money for Christmas, also let them know why it is important. Perhaps you wish to remind them that it is easier to spread the cost across the year, as you then do not have to take out a loan just before Christmas in order to pay for everything.

(c) *Make them feel personally responsible*

Personal responsibility is also another factor that can help consumers elaborate upon a message. Giving consumers clear examples of why this is directly relevant to them can make them take a further interest in the persuasive message. Stating that saving for Christmas now can be the solution to ensure that your children will get the presents that they wish for, may make feel a mother of two that she needs to act in a responsible way in order to make her kids happy. The outcome being that she pays attention to the rest of the message.

Ensure that the Person/Company that Provides the Information is Credible

8. When presenting consumers with information about sustainability it is essential that it comes from what is deemed to be a credible source. Research has shown that the effectiveness of a message depends directly on the credibility of the message's source (eg Costanzo, Archer, Aronson, & Pettigrew, 1986; Petty & Cacioppo, 1986). For example, Craig and McCann (1978) found that requests to find out more about how to save energy almost doubled when information was sent out from a state public service commission as opposed to a private electricity company. The tenants who had been sent information from the public service commission also reduced their energy consumption more.

Bearing in mind that credibility of the source is important it is useful to make use of organisations, groups etc that already have support and credibility. The groups may be smaller in size such as a football club or a church, but equally a larger organisation such as the Co-operative, can be useful in persuading consumers.

USE OF INCENTIVES

9. Positively reinforcing people's behaviour has repeatedly been found to be an effective way to increase the likelihood of a behaviour happening again (Skinner, 1953). To positively reinforce someone's behaviour means that you are somehow rewarding them for what they have just done (see table 1 on the following page for examples of positive reinforcement). A good reinforcer will be something that individuals like (Premack, 1959). Positive reinforcement generally works best when consumers are already using products and services.

Rewards can be classified into two types, primary and secondary (Rothschild & Gaidis, 2002). Primary reinforcers are something that provides instant gratification, such as when purchasing one product you get another one for free. Whilst secondary reinforcers are not instantly advantageous. Examples include tokens and coupons. Because there is usually a time delay between receiving a token and the time that it is redeemed, it reduces the likelihood that consumers will utilise the token. Secondary reinforcers generally become valuable over time as the consumer learns that they can be converted into a primary reinforcer (turning tokens into products). However, secondary reinforcers are rarely as successful as primary reinforcers when it comes to encouraging repeat behaviour (eg repeat purchase).

Table 1

EXAMPLES OF POSITIVE REINFORCEMENT

Behaviour	Consequence	Behavioural change
A family purchase fish that is identified to be from a sustainable source.	As a result of purchasing the fish, the family receives a hundred bonus points on their reward card.	Hence, the family is likely to purchase the sustainably sourced fish again.
A woman buys two apples.	She also gets one apple for free.	As a result, the woman is likely to purchase those particular apples again.
A child eats a muffin.	It tastes great.	The child is therefore likely to purchase the same brand of muffin again.

10. Incentives are great at changing peoples' behaviour but it is worth noting that if an incentive is removed after only a short time period, the original behaviour may be reinstated (Geller, Davis & Spicer, 1983). Equally, if the incentive is substantial in nature, it may lead a consumer to think that the reward is the motivation for the behaviour. Hence, once the incentive is removed again people may stop the desired behaviour (Jamieson & VanderWerf, 1993).

In order to ensure that the desired behaviour does not decrease, it is best to either keep the reward scheme going for a long time, so that the behaviour becomes habitual, or ensure that it is not taken away at all after a set period of time, like supermarket reward schemes and cards.

What should be avoided is to punish consumers for engaging in non sustainable consumption. This is just because humans have a preference for good things happening to them.

IS IT WORTH JUST TRYING TO CHANGE PEOPLE'S ATTITUDES?

11. Clearly it is always beneficial if people have a positive attitude towards sustainable consumption. Research has found that there is a link between "environmentally friendly consumption" and positively held attitudes towards concepts such as sustainability (Tanner & Wölfing Kast, 2003). However, changing people's attitudes can be both costly and time consuming, and more importantly there are few guarantees in that changed attitudes always change behaviours (eg Balderjahn, 1988; Hines, Hungerford & Tomera, 1987). It seems that only in cases whereby consumers have very strongly held attitudes is it likely that it will influence their behaviours (eg Fazio & Zanna, 1978) and even then there is no guarantee. As Costanzo, Archer, Aronson, and Pettigrew (1986) found that people who stated that conservation was the most important strategy for improving our energy future, were not any more likely to engage in energy-conserving behaviours.

People's purchase decisions are more likely to be determined by contextual factors. However, if attempting to change consumer attitudes it is worth noting that attitudes that are formed as a result of a direct experience have been found to correlate more strongly with behaviour than those that are the result of indirect experiences

(eg Doll & Ajzen, 1992). For example, tasting a tasty sustainable farmed food product is more likely to predict future likelihood of purchase than if they had only heard about it.

"Frame" the Information in the Correct Way

12. It is well established that by framing information in a certain way it is possible to generate a more preferable response from consumers (eg Tversky & Kahneman, 1981). By presenting information in terms of gains vs. not gain, or losses vs. no loss (Idson, Liberman & Higgins, 2000; Lee & Aaker, 2004; Monga & Zhu, 2005) it is possible to manipulate consumer preferences (eg Kahneman, Knetsch & Thaler, 1986). It is an efficient tool because people generate perceptions that are consistent with a frame that is directly influenced by the information specific to a particular environment (Kahneman, 2002). For example, golfers thinks it is fair if a golf course charges a regular price for "prime time" slots and offer a 20% discount at other times. However, they do not think it is fair if the golf course charges 20% premium for the "prime time" slots and a regular price at other times (Kimes & Wirtz, 2003).

Possible Barriers for Sustainable Consumption

13. It is important to recognise that there may be a number of obstacles that may prevent people from participating in sustainable consumption. The cost of purchasing sustainable goods can be a factor why not all consumers can purchase sustainable products. Another difficulty to be overcome is that the consumer must be convinced that their behaviour has a genuine impact when it comes to sustainability (Roberts, 1996). If they fail to see how purchasing certain products will help the environment they are unlikely to purchase them. It is also essential that sustainable products are readily available to consumers. If they are difficult to find or can only be purchased from less accessible stores, they are consequently less likely to be bought.

Other factors may include that people fail to recognise that it is important, don't know what to do, do not consider it to be a priority or think it is too difficult. In order to be able to get the consumer to want to purchase sustainable food products, the first hurdle to be overcome is to identify what the possible obstacles are.

Limit the Amount of Information Given to Consumers

14. On a final note it is worth pointing out that consumers have limited cognitive capacity to attend to information encountered. Consumers simply cannot attend to all product-related information they are exposed to. Hence, it is best to only provide consumers with the most essential information. Providing consumers with too much information can lead to the consumer walking off without having taken any of the information in. Let us say that you have managed to "grab" a consumer's attention by making use of a vivid stimulus. The consumer then decides to take a closer look and finds that single product contains endless information about what it can be used for. The consumer finds this a bit overwhelming and walks off. The same is also applicable to leaflets and other commonly used marketing stimuli. Keep the information informative, but make sure you only include what is deemed to be essential. If a consumer is genuinely interested they will seek out further information. So for such an eventuality, it is good to mention where they can find further information by providing a phone number and/or web address, depending on who the target audience is.

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28 March 2011

Written evidence submitted by the Fresh Produce Consortium

Introduction

1. The Fresh Produce Consortium (FPC) is the UK's trade association representing the complete spectrum of the fresh fruit and vegetable produce industry: from growers, importers, wholesalers, retailers, distributors, packers, food service organisations and other allied organisations.

Executive Summary

2. FPC welcomes the inquiry by the Environment Audit Committee into "Sustainable Food". We believe that the fresh produce industry has a pivotal role in helping the Government deliver sustainable food security. We believe that long-term food security, sustainable food production and consumption must be delivered in a global context. As a member of the Defra Fruit and Vegetables Task Force we support the aims to increase UK production and to increase consumption of fresh fruit and vegetables.

3. The total quantity of fruit and vegetables marketed in the UK decreased slightly by 3.6% (292,000 tonnes) between 2008 and 2009, following consistent growth between 2002 and 2005. There was a 2.7% decrease in vegetables marketed from 2008 and 2009, and a fall of 4.7% in the fruit sector. Since 1999 the market has grown by 10%. There is significant potential for the market to expand further to meet consumption targets, with the UK consumer eating on average only 2.5 servings of fruit and vegetables a day.

4. UK production of fruit increased by 2% in 2009 to 417,000 tonnes, continuing the rising trend of a 20% increase over the last ten years. Vegetable production saw a slight increase in 2009 to 2.6 million tonnes, after declining production of 12% over the last decade. Overall UK fruit and vegetable production increased by 1% to three million tonnes in 2009, sustaining an increase of 5% since 2007, with an overall decrease of 8% over ten years.

5. Between 1999 and 2009 vegetable self-sufficiency has fallen from 71% to 59%, whereas fruit self-sufficiency has stabilised at 12%. Overall self-sufficiency increased to 38% in 2009, compared to approximately 55% self-sufficiency in fresh produce between 1988 and 1993 (based on total volume, not solely on UK indigenous products).

6. Until recent price rises there has been an actual long-term decline in real UK food prices, with the average UK household spending 9.2% of weekly expenditure on food in 2007 compared to 20% in the 1960s.

7. Recent research indicates a perception among low-income groups (Mintel research: The Grocer & Daily Telegraph 26/27 03 11) that fruit and vegetables are "too expensive" and that these groups are cutting back on their fruit and vegetable consumption. This is extremely concerning and we call for the UK Government to counter this misperception and support increased consumption of fresh produce as part of a healthy diet as part of its Change4Life campaign.

8. The UK is more self-sufficient than before and after the Second World War, with UK production of 60% in all foods, over 74% in foods which can be produced in the UK.

9. Around 60% of fruit and vegetables are imported into the UK, providing us with produce outside the UK season as well as varieties which simply cannot be grown in the UK.

"Global not Local"

10. Research indicates that about 83% of greenhouse gases are created in the production phase of food, with transportation representing only 11% of the life cycle of greenhouse gases. The Fresh Produce Consortium is working with the Carbon Trust and others to look at how we can identify sources of emissions and reduce the carbon footprint of companies and their products.

11. According to the Food Climate Research Network studies have shown that some imported products will have been grown or manufactured in less greenhouse gas intensive ways than their UK counterparts, with savings from greater efficiency outweighing negative impacts of additional transport. It is therefore essential to balance transport emissions with other factors when evaluating and full understanding the environmental impact of fresh produce, regardless of its origin.

12. Much of the world's economy is built on trade and reducing barriers to trade in a considered and proportionate way can often have significant benefits both to the suppliers and consumers of commodities traded on world markets. Trade is a valuable tool that is recognised by the European Commission for its role in aiding development. According to the Commission, trade policies can provide opportunities for promoting economic development and tackling poverty (EU DG Trade 2005).

13. The International Institute for Environment and Development (IIED) claims that the inclusion of sub-Saharan African (SSA) nations in the high value horticulture and flower markets has been a success story for those countries (MacGregor 2007). According to the IIED, the UK imported over £200 million of fresh fruit and vegetables from SSA in 2005, and the quantity of exports from this region continues to grow. These exports are worth £100 million to Kenya alone, and this trade provides employment for about 135,000 people directly. One million people also benefit indirectly through support and employment in ancillary industries. Forty% of all air freighted FFV comes from SSA and the vast majority of this (32,500 tonnes) comes from Kenya, with the next biggest source of fresh fruit and vegetable exports by air being Ghana, with 8,000 tonnes. Kenya is the single biggest airfreight exporter in SSA, exporting 91% of all their fresh fruit and vegetable exports to the UK by air.

14. The UK's Department for International Development (DFID) acknowledges that robust action is necessary in order to begin to tackle climate change, but the Department believes that restricting airfreight in order to try to reduce GHG emissions will have negative economic impacts on the least developed countries which do export horticultural produce to the UK. DFID argues that policies aimed at reducing emissions should also acknowledge that:

- Agricultural growth is essential to economic development;
- Increased productivity means cheaper food, more jobs and higher incomes; and
- Agriculture is the most likely source of growth in Africa—70% of the poor work on the land.

15. Carbon footprints of and carbon emissions associated with the production, trade and distribution of fresh produce are issues which the industry takes extremely seriously and the FPC is actively engaging with the Carbon Trust and other bodies to look at ways in which this sector can identify sources of emissions and reduce the carbon footprint of companies and products. We believe that focusing solely on the method of transport of imported food as a basis for determining whether it is "good" or "bad" from an environmental perspective is short-sighted and misleading to consumers. Transport accounts for only one element of the carbon emissions of a particular product and therefore looking at the carbon footprint of the whole product supply chain—through the use of life cycle assessment—would be a far better way of determining its environmental impact.

16. The horticulture industry already leads in the adoption of integrated pest management systems and we will continue to press the UK Government and others to ensure that the industry has the necessary tools to provide a sustainable supply of fresh produce.

Encouraging a Healthy Diet

17. The industry's campaign Eat In Colour is ideally placed to provide consumers of all ages with advice on how to enjoy eating healthily and to reach the recommended five-a-day target. Findings of a TNS consumption survey have indicated that on average consumers are eating 2.5 servings of fruit and vegetable a

day. Without a dramatic change in eating habits it could take another 25 years for consumers to meet the recommended five-a-day.

18. With rising obesity levels across Europe it is essential that we encourage more people to eat fresh fruit and vegetables and that we can continue to provide a sustainable supply of fresh produce against the challenges of feeding an increasing world population, competing pressures on agricultural land and the impact of climate change.

19. Around 1.9 million less well off people in the UK are eating less than one serving of fruit and vegetables a day. Increasing food prices would deter them further from enjoying a healthy diet, adding to concerns about rising obesity levels and poor health.

20. The *School Fruit and Vegetable Scheme* is an example where potential restructuring from a central procurement strategy will lead to inefficiencies and additional costs for Government and businesses involved in the scheme.

21. The fresh produce industry has a pivotal role in helping Government to encourage healthy eating and we believe that it is essential to focus on developing good eating habits at an early age to achieve this. Many UK fresh produce businesses are involved in the successful School Fruit and Vegetable Scheme, which has contributed to an increase in consumption of fresh fruit and vegetables among young children. (A September 2007 report found that five-a-day consumption among school children participating in the scheme had risen from 32% in 2004 to 44% in 2006.)

22. Currently there are 16 companies involved in supplying under the Scheme, mostly small to medium sized businesses, located around the English regions. For many of these companies the Scheme is a significant part of their trade, and its restructuring or removal could have a devastating impact on overall business viability.

23. Obesity and poor diet among children is a rising epidemic across Europe, and nearly one in three 10–11 year olds in the UK is overweight. On average consumers are eating 2.5 servings of fruit and vegetable a day. Without a dramatic change in eating habits it could take another 25 years for consumers to meet the recommended five-a-day. An ambitious national programme is needed to tackle this public health issue; one which recognises the need to establish healthy eating habits among young children and avoids placing greater strain on stretched NHS resources required to combat poor health and rising obesity levels due to poor diets.

24. Government departments can make a far greater impact to combat poor diets and rising obesity levels, simply by having a cohesive policy for public sector food procurement which encourages greater consumption of fresh fruit and vegetables, regardless of their origin. Defra's Fruit and Vegetables Task Force identified the need to increase production of UK indigenous fresh produce and to encourage greater consumption of fruit and vegetables among the UK population. The School Fruit and Vegetable Scheme is fundamental in helping to achieve these objectives, with 64 million English apples going into the Scheme every year.

National support must be maintained for the Schools

25. Fruit and Vegetable Scheme which has already proved its worth in delivering value for money and achieving its objectives. We recognise the current financial constraints but we would argue strongly that the scheme should be maintained and extended so that more children have the chance to eat fresh fruit and vegetables and to encourage a healthy mindset for future generations.

26. It is vital that the Department of Health acknowledges the proven potential of this Scheme for a modest investment to increase consumption of fresh produce and establish healthy eating habits among young children.

27. We welcomed the Government's focus on better regulation and have raised a number of issues with the Task Force on Farm Regulation with regard to regulations and their implementation which are causing an immense burden on our members, and with no benefit to UK consumers, and where simplification would bring significant benefits to the industry:

- Application of Approved Trader Scheme across EU Regulation and other legislation;
- Integration of electronic systems to share existing data provided by companies;
- Removal of detailed Marketing Specific Standards;
- Simplification of UK implementation of EC Regulation 669/2009;
- Simplification of regulation of organic products;
- Review of level of service of plant health inspections provided to the industry, with more reduced inspection levels reflecting the negligible risk from fresh produce and no increased charges; and
- Government to maintain its support of the School Fruit and Vegetable Scheme including the central procurement strategy.

28. In addition, the fresh produce industry would welcome further support to remove unnecessary documentary processes imposed within the UK which put the UK on an unequal footing with regard to other EU member states and third countries which apply and interpret the same legislation in a less bureaucratic manner.

29. Following extensive lobbying by FPC and discussions with Defra and the Horticultural Marketing Inspectorate (HMI) the Approved Trader Scheme has been introduced for the UK's implementation of the EU Marketing Standards, resulting in significant deregulation of import procedures. From 20 July 2010 HMI has recognised the high standards of reputable traders by assigning them Approved Trader status, permitting immediate release of products at their point of importation.

30. To be eligible for the Assured Trader status a company must have a record of low action; have training in place for staff; maintain records of inspection of their goods showing appropriate corrective action; and have suitable facilities. The status is applied for three years, during which a company is subject to regular checks and audits of its quality control records, occasional conformity checks by HMI at the port of entry, as well as an annual review. If a company starts to fail to meet the required criteria it will receive a warning, prior to its status being removed.

31. The scheme allows inspectors to focus checks on companies identified as carrying potentially higher risk. Data can be shared across Government departments through the online PEACH system, another excellent example of government listening to industry, which has been developed to provide fast track electronic clearance of goods. More recent developments such as the Automatic Licence Verification System (ALVs) have meant integration of electronic systems with Customs' CHIEF system.

32. Without these achievements many small to medium sized businesses would have faced a mass of additional bureaucracy, costs and delays, as well as having to deal with the current economic pressures.

33. It is extremely frustrating that these proven examples of pragmatic approaches to the interpretation and implementation of regulation are not recognised and adopted by other government departments and agencies, notably the Food Standards Agency in relation to the UK's implementation of EC Regulation 669/2009 (control of "high risk" products) and Fera in relation to plant health import inspections.

Integrating systems and using electronic processes

34. A report by SITPRO ("The cost of paper in the supply chain" 2008) found that the current documentary systems cost the perishable food supply chain more than £1 billion annually.

35. The cost of document-related administration in the sector is estimated to be around 11% of the supply chain value per annum, with the generation of paper-related documentation estimated at £126 million a year. Nearly 13 million man hours in 2005 were estimated to have been taken up with entering data, chasing late or missing documents or preparing claims for deferment monies deposited with HMRC, equating to over £354 million a year.

36. A single consignment transaction, from grower to retailer, can comprise up to 150 documents (or up to 225 pieces of paper) which results in duplicate elements of information being entered up to 42 times.

37. There is enormous scope to simplify procedures between importers, exporters and authorities, and to integrate electronic systems to reduce these costs to the fresh produce industry. According to the SITPRO report, with the introduction of e-documentation and shared data through a "single window" the chilled food industry could save at least £700 million, around 70% of the costs, and benefit from fewer inspections of consignments, and reduced clearance processing time. The fresh produce industry represents about 25% of the chilled food industry, and therefore could save around £175 million according to SITPRO's estimates.

38. There is evidence that several Government departments and agencies often require the same documentation, leading to duplication of resources by the industry. Improved sharing of data, transfer of documentation and better integration of Government departments and agencies would also reduce unnecessary bureaucracy.

Government Investment

Research and development, and training for future workforce

39. There is a need for Government to invest further in research and development to support the industry. It is vital that the industry continues to make advances and develops the necessary tools to meet the challenges of increasing food production.

40. Government support is needed to encourage young people to develop careers in food production and to provide the necessary training. The fresh produce industry has to compete with other industries which have greater investment in this area and which are perceived as more attractive by a younger generation.

41. Contact details: The Fresh Produce Consortium, Minerva House, Minerva Business Park, Lynch Wood, Peterborough PE2 6FT, tel: 01733 237117.

28 March 2011

Written evidence submitted by the Permaculture Association

— We need to move from an industrial food and farming system dependent on high external inputs, to an agroecological one that cycles nutrients and resources sustainably on local and regional scales.

— This shift in approach will require new skills and businesses—from ecological design (permaculture) for landscape and settlement re-development, to practical land management skills such as making activated compost teas and holistic management grazing.

— "Peak oil" is coming and will usher in much higher fuel prices. We need to redesign our settlements now to become more resilient and self-reliant with reduced dependency on high energy inputs and long supply chains.

— Many years of practical experimentation in this country and around the world demonstrate that an agroecological approach is both possible and desirable, and can deliver social, environmental and economic benefits.

1. Permaculture is not a form of agriculture, rather an ecological design approach that can be used to design agricultural systems as part of wider sustainable settlements. It is based on observations of natural systems in which local beneficial relationships are maximised. Permaculture adopts techniques as appropriate to the situation, such as agroforestry, holistic management grazing, forest gardens, silvo-pasture, eco-building, energy efficiency, rainwater harvesting, etc.

2. The task to re-establish a sustainable food and farming system is the same, ie to cultivate local beneficial relationships which cycle nutrients, resources and money between producers and consumers.

3. Integrated design can solve multiple problems. We face multiple challenges—peak oil, climate change, soil degradation, low farm incomes, flood risk, drought risk and so forth, and we therefore need approaches that can respond to them in an integrated way. Permaculture design is one such approach, and we believe there is now an urgent need to scale up our work and do more testing at a farm and landscape scale. Project proposals are in place to do this.

4. There are now tools available for the re-design of the economy—the so called "circular economy" as proposed by Dame Ellen McArthur, the New Economics Foundation and others. This thinking and overall approach needs to be applied to the food and farming sector too, and is indeed an excellent place to start.

5. The food and farming sector is dominated by a number of very large corporations, and we would like to promote greater competition to enable more local and regional food networks and businesses to emerge. The market dominance of supermarkets in particular must be examined and challenged.

6. The most important constraint facing every aspect of the industry in the coming years will be the price of oil and gas. This will affect diesel prices and the costs of producing synthetic nitrogen fertilizers, pesticides, herbicides, insecticides etc. This suggests the need to re-think the way we farm at a fundamental level. Solutions will include a shift to largely organic practices, the use of nitrogen fixing plants (trees in particular, which lead to the need for farm design skills), and integrated pest management approaches (which suggest the need for polycultures and diverse planting arrangements). Permaculture is a 40 year long response to the coming challenge of "peak oil", with its emergence soon after the 70's oil crisis. We are therefore confident that we have much to offer in this transition to a low carbon society.

7. A second major constraint will be the availability of super phosphate, another issue that suggests that a cyclic economy and food system in which nutrients are returned to the farm (human wastes, composts, swill, etc) will be essential for the long term fertility and productive capacity of our land.

8. Society's response to climate change must be twofold. Firstly to reduce drastically the amount of carbon emitted by society, and secondly to sequester carbon from the atmosphere in order to reduce atmospheric concentrations to 350 ppm and ideally back to 280 ppm which is the pre-industrial level. The only industries able to sequester carbon are farming and forestry. The most important steps to sequester carbon are to: reduce inversion ploughing to a minimum; reduce use of agrochemicals that disrupt the ecological/biological functioning of soils; increase tree cover substantially; and build soil carbon.

9. Agricultural approaches that incorporate trees are therefore useful such as agroforestry (silvopasture, silvoarable, forest gardens), as is the incorporation of a greater amount of managed woodland within farms and the landscape overall. A key limit here is the low skills base farmers have around designing and managing tree crops. There are currently no subsidies for integrating trees within agricultural systems. Farming and forestry are seen as separate industries, which is to the detriment of both, and to UK land use generally.

10. To build soil carbon we need to reduce inversion ploughing to a minimum and reduce agrochemical use. To re-build soil fertility we can adopt "soil food web" approaches as championed by Dr Elaine Ingham, where ecological processes are enhanced and nurtured using activated compost teas, worms and so on. Keyline planning and use of long rooted plants are other strategies that can help build substantial soil fertility and organic matter content.

11. For grazed land, keyline planning and holistic management are both highly useful approaches that can dramatically increase soil carbon levels. Again both have been tested in other countries (groups such as Carbon Farmers of America in the USA, similar groups in Australia) but are yet to be trialled and developed in the

UK. Considering around 65% of the UK is grazed, it makes sense to trial a method that claims to build soil carbon and increase farmer incomes substantially. The Permaculture Association is working to develop trials of both keyline planning and Holistic Management in the UK in the near future, and is seeking support and partners to do this.

12. Planning policy is a key challenge to new entrants. It needs to be easier for farming and horticultural activities to start, especially on the edge of settlements where a ready market is available with minimal transport requirements. Horticulture is an intensive form of food production that requires close and constant attention, and permaculture experience shows that productivity and nutrient flows are maximised when the managers are able to live on site. This is made very difficult by the current planning system. We don't yet know how the Localism bill or new National Planning Framework will affect this.

13. Land ownership and the very slow turnover of land for sale on the market is also another major hurdle for new entrants to farming. The average size of farm is increasing, whereas for agroecological benefits they should almost certainly be reducing. Policies that allow access to land for new entrants would be desirable but obviously politically challenging. New forms of tenure, new tenure contracts and agreements that enable new entrants to have security without necessarily having ownership would be useful here. Encouragement of a public debate about land ownership would be one step forward, and a number of policy instruments have been suggested (land tax for example).

14. From a food production perspective the key critical shift is from extensive monocultures (lots of land, with high external inputs) to intensive polycultures (smaller scale systems, with low external inputs). Polycultures are normal at a smaller scale, within horticulture and in traditional systems. New research is needed in the UK to catch up with practice that is becoming normal in other countries (New Zealand, France, USA all have much more advanced agroforestry systems, support and research for example). Polycultures have been proven to be more resilient to fluctuations in stresses such as heat, pests, water availability, and overall more productive than monocultures (RAND corporation). On-farm trials of polycultures are essential to develop new productive farm systems that make use of this latest thinking and make it available in proven configurations for other farmers. Prof Martin Wolfe's work to develop "population wheat" at Wakelyns Farm, (and supported by Defra) is an excellent example of what can be done.

15. A new agricultural extension system is required, where innovation and learning is driven at farm level and by farmers themselves, and supported by university research and other expertise as required. Participatory in nature and using new network design approaches and online systems. There are many NGOs, universities and farmer pioneers that if properly connected, could create the required impetus for a shift towards an agro-ecological/sustainable/local/regional market orientated food system. This requires government support but could be best achieved through a genuine partnership between farmers, agencies, NGOs and researchers. Pilot programmes need to be developed. The Low Carbon Farming Initiative proposed by the Permaculture Association has described a process to test and develop such an agricultural extension system.

16. Agricultural research programmes need to be re-prioritised to give equal attention to agroecological issues. Biotechnology will provide some solutions (although the Association does not support transgenic gene transfer "GM"), but agroecological methods offer greater potential in our opinion, and also allow scope for farmer innovation (as stated above). Current research programmes barely mention agroecology and seem to be mainly for biotech development that favour large scale monocultures.

17. Food production needs to be supported within urban areas, and landscape architects and city planners need to recognise the huge interest at a local level for the creation of highly productive "edible landscapes" which nourish people and city with a range of food and non-food crops. These systems can be highly productive and have educational, health and social cohesion benefits, as well as environmental benefits such as increased biodiversity.

18. We need to send out clear signals about what we want the sector to do. CAP reform is one way that this can be done. It is essential that the goals for the system are integrated and holistic and go beyond profit and per unit area production. We would suggest that "holistic goals" for a future food and farming sector would be along the lines of:

- Improved farmer quality of life.
- Improved farm incomes.
- Reduced whole farm carbon footprint and increased carbon sequestration through increasing soil organic matter (leading towards becoming a carbon sink rather than source).
- Increased on-farm biodiversity.
- Increased soil health and fertility.
- Increased water holding capacity and reduced contribution to local flooding.
- Equal or increased yields per unit area.
- Reduced requirement for external inputs (agro-chemicals, fuel, water).
- Strengthened local resilience and enhanced regional food economies.
- Farm innovation, research and development is dynamic and participatory and enhances the above goals.

19. A farming system that met these goals would be productive, environmentally sound and with huge social benefits. Once holistic goals are set all policy instruments then need to be set to ensure they happen. The Holistic Management goal setting and management process would be useful to follow, to do this at both national policy level and at a farm scale (it is already being used widely at a farm scale in other countries).

20. Once these goals are set they would need to be communicated widely through popular education approaches, websites and the government's own channels. Since these goals are essentially "a good thing" they would be widely supported by the public and could allow wide participation in the development of local scale solutions. The Local Food Fund (set up by a consortium of which we are members) has been given £50 million from the Big Lottery to support local food initiatives and projects. We were massively oversubscribed (by around three times) and had to close to new applications early. There is a huge appetite for local food. It is a topic that can engage everyone, and can be used to enhance many other important goals—education, cohesion, health etc. Financial and policy support for more local and regional food systems will be hugely popular and deliver real sustained benefits.

21. The Permaculture Association is willing to elaborate in more detail on any of the points made above to suit the Environmental Audit Committee as required.

About the Permaculture Association

The Permaculture Association is a company (05908919) and registered charity (1116699 and SC041695). The Association is part of a world-wide network of associations working towards a common aim of teaching and disseminating design methodologies to enable sustainable human settlements which maximise productivity and minimise unwanted outputs and energy consumption (including work) to provide high standards of social, ecological, and economic wellbeing in an equitable way.

This discipline is founded in benign systems of land-use which are high yielding and in harmony with the natural environment. Several hundred thousand people have attended permaculture courses world-wide, with the majority practicing garden scale food production, and a small but growing minority practicing permaculture on a broader scale as farmers and land managers.

The Permaculture Association currently has 1,200 members and some 3,000 people have graduated from the full Design Course, which sits at the heart of the Association's efforts to build a core of thought leaders and practitioners skilled, experienced and well connected in sustainable living.

The Association is currently running a major project to create a permaculture learning and demonstration network of 80 learning centres, supported by online services and information, where people can see permaculture in practice. Sites include home gardens, community gardens, public spaces, allotments, smallholdings and farms.

The Permaculture LAND project (Supporting local food by Learning & Network Demonstration) was the first national project funded by the Local Food scheme managed on behalf of the Big Lottery by the Royal Society of Wildlife Trusts and with sixteen major partners.

28 March 2011

Written evidence submitted by Research Councils UK

Summary

- Sustainable food production requires understanding the interconnectedness of the food production and supply chain with the wider environment, climate change, resource and energy use, land use, global markets and wider societal issues.
- Developing the knowledge base to inform understanding will require a coordinated multidisciplinary research effort.
- The Global Food Security (GFS) programme is a multi-partner programme, including five Research Councils, key Government departments and the Technology Strategy Board, designed to address the food security challenge.
- UK Research Councils deliver a number of other research programmes to inform sustainable food production and supply, often working in partnership and with Government departments.

Introduction

1. Research Councils UK (RCUK) is a strategic partnership set up to champion the research supported by the seven UK Research Councils. RCUK was established in 2002 to enable the Councils to work together more effectively to enhance the overall impact and effectiveness of their research, training and innovation activities, contributing to the delivery of the Government's objectives for science and innovation. Further details are available at www.rcuk.ac.uk.

2. This evidence is submitted by RCUK on behalf of the Research Councils listed below and represents their independent views. It does not include or necessarily reflect the views of the Knowledge and Innovation

Group in the Department for Business, Innovation, and Skills (BIS). The submission is made on behalf of the following Councils:

— Biotechnology and Biological Sciences Research Council (BBSRC).[54]

— Economic and Social Research Council (ESRC).[55]

— Natural Environment Research Council (NERC).[56]

3. RCUK's response focuses on the provision of underpinning research for the sustainable increase in production and supply of safe, nutritious and affordable food. It serves to highlight the investment the UK Research Councils have made in producing and disseminating the knowledge to inform policy-makers and other end-users, and to drive innovation for sustainable food production.

Sustainable Food Production—Definition and Challenges

4. The sustainable intensification needed to feed a world population expected to be nine billion by 2050 must ensure that adverse impacts on terrestrial and aquatic environments are minimised, while also adapting to other societal, economic and health challenges. It is essential that measures to enhance food security do not undermine the other ecosystem services on which food production depends and with which it interacts.

5. Meeting the challenges of sustainable food production requires appropriate future land use, policy, market and technology decisions. The knowledge base to inform these decisions is currently insufficient.

6. Developing the necessary knowledge base requires the coordination of a multidisciplinary research effort to understand the interconnectedness of the food chain with the wider environment, climate change, resource and energy use, land use, global markets and wider societal issues. Multidisciplinary and integrated research from across the natural and social sciences, coupled with engineering, will help inform decisions for food production which is—in itself—one of the largest drivers of environmental change.

7. In 2010 the UK government, under the Chief Scientific Advisor, Sir John Beddington, produced a *UK Cross-Government Food Research and Innovation Strategy.*[57] As defined in the foreword:

> "...the issues surrounding food are frequently complex, inter-connected and multi-faceted. Often they extend across organisational responsibilities. Solutions must take account of this complexity to be coherent, and if they are to succeed need to draw on the breadth of knowledge and understanding that is available from many disciplines, organisations and sectors".

Global Food Security Programme[58]

8. The Global Food Security Programme[58] is a multi-agency programme designed to address the challenge of providing the world's growing population with a sustainable, secure, affordable supply of nutritious good quality food from less land and with lower inputs, in the context of global climate and environmental change. Led by BBSRC, it brings together five of the Research Councils (the Engineering and Physical Sciences Research Council and the Medical Research Council (MRC), as well as BBSRC, ESRC and NERC) in partnership with relevant Government departments and the devolved administrations. It builds on the activities of each of the funding partners and aims to add value to their investments. It is intended to bring additional coherence by acting as a focus for joint activities and alignment of their individual activities with shared goals.

9. A priority focus of the GFS programme is *sustainable food* production and supply. The GFS programme comprises four themes that map onto the *Cross-Government Food Research and Innovation Strategy.*[59] These themes and associated lead organisations are:

— *Sustainable food production and supply* (led by BBSRC, Department for Environment, Food and Rural Affairs (Defra), Department for International Development (DFID) and the Scottish Government)—to include: crop and livestock production, aquaculture, food processing, manufacture and transport.

— *Resource efficiency* (led by NERC, with Defra)—to include: land use and soils, greenhouse gas emissions, waste, energy, water and nutrients.

— *Sustainable, healthy, safe diets* (led by MRC and the Food Standards Agency (FSA))—to include food safety throughout the supply chain, nutrition, consumer behaviour, food choice and accessibility.

— *Economic resilience* (led by ESRC; with BIS) to include *global trade, food market economics, economic impact of food safety issues, competitiveness of farming and food businesses*.

[54] BBSRC: http://www.bbsrc.ac.uk/
[55] ESRC: http://www.esrc.ac.uk/
[56] NERC: http://www.nerc.ac.uk/
[57] http://www.bis.gov.uk/assets/bispartners/goscience/docs/c/cross-government-food-research-strategy
[58] RCUK Food Security Programme: http://www.foodsecurity.ac.uk/
[59] *UK Cross-Government Food Research and Innovation Strategy* (GO-Science, 2010), Annex 2 and 4: www.dius.gov.uk/~/media/publications/GO-Science/UK-Cross-Government-Food-Research-Strategy

10. The GFS programme includes five Research Councils working in partnership with relevant Government departments, agencies, and the devolved administrations. It builds on the activities of each of the funding partners and aims to add value to their investments. It is intended to bring additional coherence by acting as a focus for joint activities and alignment of their individual activities with shared goals.

11. The GFS programme will provide added value through:

— *Improved Cohesion* between funders in this area—including sharing of views and strategy development at early stages, and improved awareness of one another's strategies and priorities. This follows the model provided by the Living with Environmental Change[60] programme which includes a similar range of funders and engenders the principle of co-design, co-production and co-delivery to ensure that the evidence produced meets the needs of policymakers and other users.

— *Providing Leadership*—helping to build a more integrated community of researchers and users; acting as a focal point for the diverse research communities, industry, politicians and policy-makers; helping to maximise the value and impact of food security research across government, and to make a strong case for that investment; providing a platform to lever greater contribution of funding from the private sector and from international partner organisations.

— *Increased Impact*—through better coordinated and more effective dialogue with and stronger links to wider stakeholders/users (such as agriculture and other industrial sectors, policy makers, civil society organisations and the public); increased UK interactions internationally; linking research priorities and outcomes better to the development agenda, G8 commitments and Millennium Development Goals; a more coherent UK approach to the EU food security agenda; increasing the impact of research findings in public policy including regulatory frameworks; use of appropriate mechanisms for evaluation of the success of the programme.

— *Increased Innovation*—through new knowledge leading to new products, processes and policy/regulatory approaches that support and encourage innovation, as well as through novel interdisciplinary approaches to address the challenges of delivering sustainable future food systems. This will include protecting and respecting intellectual property rights to encourage innovation and investment in research.

— *Improved Horizon Scanning and Foresight*—to identify and respond to emerging priorities, for example by joint analyses and exploiting opportunities to recognise and address gaps and weaknesses in research, skills and facilities.

Other Relevant Cross-Research Council Programmes

12. Working in partnership, UK Research Councils and Government departments co-deliver a number of other programmes that will help to inform sustainable food production, for example:

— *Living With Environmental Change (LWEC)*[61]—A major partnership of 22 organisations across the Research Councils, Government departments and agencies. Under the auspices of LWEC, notable investments of relevance include the Insect Pollinators Initiative (2009, £10 million), funded by BBSRC, NERC, Defra, the Scottish Government and the Wellcome Trust to provide an evidence base to inform the conservation of wild insect pollinators and to improve the husbandry of managed species, in order to avoid the potentially catastrophic loss of the ecosystem services they provide.

— *Ecosystem Services for Poverty Alleviation (ESPA)*[62]—Partnership between DFID, NERC, ESRC. This multidisciplinary £40.5 million research programme aims to deliver high quality and cutting-edge research that will deliver improved understanding of how ecosystems function, the services they provide, the full value of these services, and their potential role in achieving sustainable poverty reduction. ESPA research will provide the evidence and tools to enable decision-makers and end-users to manage ecosystems sustainably and in a way that contributes to poverty reduction.

— *Rural Economy and Land Use (RELU)*[63]—Partnership between ESRC, NERC, BBSRC, Scottish Government, Defra. The £24 million Rural Economy and Land Use[62] programme is helping us to understand the social, economic, environmental and technological challenges that rural areas face. Its interdisciplinary research is informing policymakers' choices about how to manage the countryside and rural economies, including in relation to production and supply of sustainable food. It also aims to encourage the social and economic vitality of rural areas, and promote protection and conservation of rural environments.

[60] LWEC: http://www.lwec.org.uk/
[61] LWEC: http://www.lwec.org.uk/
[62] ESPA: http://www.esi.ac.uk/espa/
[63] Relu: http://www.relu.ac.uk/

Other Relevant BBSRC Investments

13. BBSRC is the lead Research Council for food: "Food Security—bioscience for a sustainable supply of sufficient, affordable, nutritious and safe food, adapting to a rapidly changing world" is one of the three key priorities in the Council's Strategic Plan.[64] BBSRC spends almost half its budget on food-related research and training, around £190 million per year out of the total UK government spend of over £400 million.[65]

14. Funding is primarily through UK universities and BBSRC-supported research institutes.[66] BBSRC also funds industrial collaborative schemes, international collaborations and public engagement which help to add value to the research and increase its impact. In addition, BBSRC is the primary funder of postgraduate studentships related to food.

15. Recent BBSRC investments in this area include:

- *Sustainable Crop Production Research for International Development (SCPRID)*:[67] A major new initiative announced in January 2011 will fund teams from the UK, India and developing countries to work on research projects to improve the sustainability of staple food crops. Up to £20 million is available, made up of contributions from BBSRC, the Bill & Melinda Gates Foundation, DFID and the Indian Government's Department of Biotechnology.
- *Enhancing photosynthesis (2011)*: A joint BBSRC and US National Science Foundation scheme developed multidisciplinary, transformative, and high risk—high reward proposals on enhancing photosynthesis. It funded four proposals from a total fund of £6 million. A parallel BBSRC initiative has funds of £2 million available.
- *Wheat pre-breeding Programme (2011)*: A £7 million grant to a consortium of researchers led by the John Innes Centre, aiming to increase the diversity of traits available in wheat via a comprehensive pre-breeding programme—the first of its kind in the UK for over 20 years.
- *Wheat sequencing*: A team of UK researchers, funded by BBSRC, released the first sequence coverage of the expressed wheat genome in 2010. The release is a step towards a fully annotated genome and makes a significant contribution to efforts to support global food security and to increase the competitiveness of UK farming.
- BBSRC's *Advanced Training Partnership* scheme, with up to £15 million funding over five years, will support the development and delivery of postgraduate training for the agriculture and food industries through partnerships between consortia of organisations.
- *LINK*: BBSRC continues to invest in the LINK scheme and has funded over £5 million in recent years in partnership with industry to address problems across the food chain.
- *Food safety*: As part of the UK government's *Campylobacter* strategy BBSRC has recently invested over £3 million with Defra and FSA in a series of joint initiatives to tackle the leading cause of food-borne disease in the UK.
- *Crop Improvement Research Club*: Funding of £6 million (plus £0.5 million from the Scottish Government and £0.5 million in subscriptions from 14 company members of the club) for industry-relevant research on wheat, barley and oilseed rape for food and animal feed uses, with crop quality and productivity as high priority topics.
- The *Sustainable Agriculture and Food Platform*, led by the Technology Strategy Board, with support from BBSRC and Defra, will see investment of up to £75 million to support the development of new technologies that will increase food productivity, while decreasing the environmental impact of the food and farming industries.
- *North Wyke Farm Platform*: BBSRC has recently invested over £1 million in an experimental "farm platform" for sustainable agriculture research at the North Wyke site of Rothamsted Research.

Other Relevant NERC Investments

16. NERC is the primary UK funding agency for all research, training and knowledge exchange in environmental sciences. *Biodiversity*, *Climate science*, and *Sustainable use of natural resources* are three of NERC's seven strategic science themes that direct research which contributes significantly to the knowledge-base useful to sustainable food production. NERC has a number of research centres,[68] collaborative centres and other service and facilities providers which play a leading role in delivering the science to understand environmental impact of change within systems. NERC has recently invested in a number of research programmes which either directly or indirectly consider food production systems and the ecosystem goods and services supporting these systems.

[64] BBSRC Strategic Plan: http://www.bbsrc.ac.uk/strategy /
[65] http://www.bis.gov.uk/assets/bispartners/goscience/docs/c/cross-government-food-research-strategy
[66] BBSRC institutes: http://www.bbsrc.ac.uk/organisation/institutes/institutes-of-bbsrc/
[67] SCPRID: http://www.bbsrc.ac.uk/scprid/
[68] Centre for Ecology & Hydrology, British Geological Survey, National Oceanography Centre, and British Antarctic Survey.

17. NERC has been the principal sponsor of the "Global Environmental Change and Food Systems" project (GECAFS)[69] which has significantly boosted the food systems approach to food security in the context of global change. ESRC has also made a significant contribution.

18. NERC has recently invested in a number of research programmes which either directly or indirectly consider food production systems and the ecosystem goods and services supporting these systems. Relevant examples are listed below:

— *Biodiversity & Ecosystem Service Sustainability (BESS).*[70] A five-year research programme, which aims to contribute to the understanding of the functional role of biodiversity in key ecosystem processes.

— *Valuing Nature Network (VNN).*[71] A two-year network in order to promote and develop research capacity in the valuation of biodiversity, natural resources and ecosystem services.

— *Macronutrient Cycles.*[72] Aims to quantify the scales of nitrogen and phosphorus fluxes and nature of transformations through the catchment under a changing climate and perturbed carbon cycle.

— *Changing Water Cycle.*[73] Will develop an integrated, quantitative understanding of the changes taking place in the global water cycle to improve predictions for the next few decades of regional precipitation, evapotranspiration, soil moisture, hydrological storage and fluxes.

— *Virtual Observatory.*[74] Will define the concepts and methods that will enable a better understanding of the water-soil system of rivers.

Other Relevant ESRC Investments

19. The ESRC is the UK's largest organisation for funding research on economic and social issues. It supports independent, high-quality research which has an impact on business, the public sector and the third sector. A number of the Council's seven Strategic Plan priorities have a resonance with the challenges of providing sustainable food. Key ESRC research investments in this area are listed below:

— *Social, Technological and Environmental Pathways to Sustainability (STEPS) Centre.*[75] STEPS examines the complex relationships between agriculture/food, health/disease and water/sanitation from a developing world perspective, linking environmental sustainability and technology with poverty reduction and social justice.

— *Centre for Business Relationships, Accountability, Sustainability and Society (BRASS).*[76] The focus of BRASS research is on interactions between businesses and their social and physical environment. BRASS includes a research domain that focuses on sustainable agriculture. BRASS won a research contract, working with the Welsh Assembly Government and Food and Drink Advisory Partnership to develop the new *10 Year Food and Drink Strategy for Wales*.

— *Waste of the World.*[77] The research examines waste economies, the commodity chain and the destruction of excess. Waste of the World features a research project that looks at various aspects of food waste.

— *Social and Environmental Economic Research (SEER) into Multi-Objective Land Use.*[78] The research examines the optimal use of land through economic assessment of effects from policy, market or environmental change, and secondary consequences and feedback effects. The "true" value of the land is examined in terms of its market value and its wider social value. Research of this type clearly has an important role to play when considering sustainable food systems.

28 March 2011

[69] GECAFS: www.gecafs.org
[70] BESS: http://www.nerc.ac.uk/research/programmes/bess/
[71] VNN: http://www.nerc.ac.uk/research/programmes/valuation/
[72] Macronutrient Cycles: http://www.nerc.ac.uk/research/programmes/macronutrient/
[73] Changing Water Cycle: http://www.nerc.ac.uk/research/programmes/cwc/
[74] Virtual Observatory: http://www.nerc.ac.uk/research/programmes/virtualobservatory/
[75] STEPS centre: http://www.steps-centre.org/
[76] Centre for BRASS: http://www.brass.cf.ac.uk/
[77] Waste of the World: http://www.thewasteoftheworld.org/
[78] SEER: http://www.esrc.ac.uk/my-esrc/grants/RES-060–25–0063/read

Written evidence submitted by Dairy UK

Executive Summary

- The impact of the dairy industry on the environment has been exaggerated. Globally dairy is responsible for just 2.7% of man-made green house gas emissions.
- The UK dairy industry takes its environmental responsibilities seriously. Through the Dairy Roadmap the industry is subject to challenging and demanding targets to improve its environmental performance.
- Dairy foods are nutrient dense and affordable. They are an essential part of a balanced healthy diet and their nutritional value cannot easily be replaced by substitute products.
- The Government can improve the sustainability of food production and consumption by encouraging changes in productive efficiency through:
  - Supporting the creation of sector specific roadmaps; and
  - Encouraging consumers, within the context of a healthy balanced diet, to choose products from companies and industries committed to improving their environmental performance, particularly through the use of Roadmaps.
- Consumer information systems should be developed to help consumers make such choices.
- The Government should not seek to define a "sustainable diet". The research evidence is not available to do so and there is no certainty that any Government recommendations for a sustainable diet will produce desirable environmental outcomes.
- Dairy UK therefore recommends that improvements in sustainability should be led by improvements in productive efficiency, achieved through Roadmaps and reinforced by consumer demand, rather than an approach based on changing patterns of consumption.

Dairy UK

1. Dairy UK represents the interests of dairy farmers, producer co-operatives, manufacturers of dairy products, and processors and distributors of liquid milk throughout the United Kingdom.

2. Between them Dairy UK's members collect and process about 85% of UK milk production.

Question 1: *How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?*

3. Dairy UK believes that the environmental and climate change impacts of the food we choose to eat could best be reduced by:

- Government supporting the creation of sector specific Roadmaps that set out objectives for the improvement in the environmental performance of the sector concerned.
- Encouraging consumers, within the context of a healthy balanced diet, to seek to identify products and brands from farms, processors, retailers and national agricultural sectors which have a demonstrable commitment to improving sustainability, particularly through the use of Roadmaps.

4. In combination this approach can deliver quantifiable improvements in environmental performance and provide the incentives for the supply chain to invest to deliver those improvements.

Roadmaps

5. The dairy industry leads the UK in the development of Roadmaps. The Dairy Roadmap sets out the environmental vision and strategy for the entire dairy industry supply chain, from producer to the retailer. The Dairy Roadmap is a living document that will ensure that the industry is subject to challenging and demanding targets for improving its environmental performance.

6. The Roadmap was drawn up by a working group chaired by the industry, with membership from across the milk supply chain, from feed and fertiliser manufacturers to consumers.

7. The dairy sector will publish a report on progress against the first target period of the Dairy Roadmap in March/April this year. The processing sector has already reached the 10% incorporation of recycled plastic in milk bottles across all major supermarkets and is pushing towards 15%. The sector is set to meet its Climate Change Agreement commitments in this final phase of the current agreement. In terms of benchmarking the dairy sector has collected key environmental performance indicators since 2008 and will report the progress in the Roadmap report.

8. Dairy farmers have committed to a range of environmental improvements through the Roadmap, including addressing climate change, pollution and resource efficiency. By 2020 dairy farmers commit to reducing the greenhouse gas balance by 20–30%, active nutrient planning and therefore reducing nitrogen runoff and investing in renewable energy.

9. As agriculture is a devolved issue, the 2008 Dairy Roadmap was launched in partnership with Defra and covers England. In 2010 the Welsh Assembly Government published a Dairy Roadmap for Wales. Both Roadmaps are similar and despite devolved responsibility for government the industry has committed to applying the targets nationally and making improvements throughout the UK.

10. In addition to reporting on progress, the processing sector has taken the opportunity to review the 2015 and 2020 targets and has updated a number of these to ensure that the targets remain relevant and challenging.

Consumer Engagement

11. In addition to Roadmaps consumer information systems are required that enable consumers to choose products within their existing dietary preferences that improve their sustainability. By way of example this means that if an individual is consuming liquid milk, then they would continue to consume liquid milk, but they would be encouraged to choose brands of liquid milk that have a better or improving environmental performance.

12. The consumer can be informed about the relative performance of individual brands by a variety of means. This can include information communicated by processors through marketing claims, or, for greenhouse gases in particular, they can be informed through the right sort of carbon labelling systems.

13. For carbon labelling to be beneficial it has to inform the consumer of the improvement in the greenhouse gas emissions achieved by the product. This would have to express the change against a base period, so the information would be in the form of X% reduction in carbon compared to a baseline.

14. The wrong sort of carbon labelling would be the type that attempts a simple quantification of the greenhouse gases associated with any product; the sort that says the product generated so many grams of carbon. This sort of information prompts consumers to make comparisons between products based on the impact of the current pattern of production. This information is insufficient to make an informed choice about changing patterns of consumption. That would require information on the environmental impacts associated with land use changes from decreasing consumption of one product, and increasing consumption of another. That is why great care has to be taken to provide the right sort of carbon labelling to mobilise and engage the consumer.

15. Once the consumer is engaged, this will send a commercial signal to individual companies, and through the process of market competition, to the rest of the industry, to continue to improve its environmental footprint. This would provide an additional competitive market dynamic that would supplement and reinforce the commitments in the Dairy Roadmap.

Land-Use Trade Offs

16. Switching land used for dairy production to other uses could have serious negative environmental consequences. Pastureland captures and stores carbon. Ploughing up land for conversion to arable crops releases significant amounts of carbon. Precise quantification of this effect is not available, but it could mean that positive environmental payback from any change in land use could take many years to come through.

17. In respect of the land-use effects of increasing the production of dairy substitutes, the effects are potentially unknowable, as there can be no certainty how consumers may choose to change their diet or where these substitutes will be sourced from.

Question 2: *How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?*

18. Sustainability has three components; economic, social and environmental.

Social Sustainability

19. In respect of the social aspects of sustainability, good nutrition is key to health. The easiest way for consumers to get all the nutrients their bodies need is to eat a variety of foods from all food groups in appropriate amounts. Dairy foods are included in food dietary guidelines worldwide because it's recognised that they contribute substantially to a wide variety of nutrients across all age groups.

20. In GB, dairy foods (particularly milk, cheese and yogurt) make an important contribution to nutrient intakes in all population groups. For all age groups, they are a major source of calcium, riboflavin, vitamin B12, phosphorus and iodine. They also contribute significantly to intakes of protein, vitamin A, potassium, magnesium and zinc. With regard to dietary fat, the dairy industry provides the consumer with a vast range of choice from virtually fat free to low-fat to regular fat varieties.

21. Dairy products are also clearly affordable, with liquid milk achieving up to 98% penetration of UK households.

22. The Government can therefore help deliver healthy food sustainably through recommendations to consume nutrient dense affordable foods produced by sectors actively engaged in delivering their products sustainably.

Economic Sustainability

23. In respect of the economic aspect of sustainability, the most effective mechanism for ensuring the economic sustainability of food production and consumption are properly functioning competitive markets. The competitive pressures of markets ensures that operators continually seek to improve their efficiency and reduce waste. This ensures value for consumers and affordability. Regulated markets protect inefficient and potentially wasteful operators.

Environmental Sustainability

24. As stated above the development and support by Government of sector specific roadmaps would be the most effective mechanism to ensure improvements in the environmental sustainability of healthy food.

Question 3: *How can consumers best be helped to make more sustainable choices about food?*

Difficulties of Defining a Sustainable Diet

25. As stated above Dairy UK believes that consumers can be helped to make choices about food that reduces the environmental impact of consumption through labelling and consumer information systems that assist consumers to make informed choices within their existing diet.

26. Dairy UK does not believe that an improvement in sustainability would be achieved by making recommendations to consumers to change their consumption patterns towards a "sustainable diet." This is because:

- — the evidence base does not exist to make recommendations on a sustainable diet; and
- — there are no effective guarantees that any recommendations to consumers will deliver positive environmental benefits.

27. Determination of a sustainable diet would require examination of the social, environmental and economic aspects of sustainability. This would have to be followed by determining the trade-offs that might have to be made between the three components. There are major challenges in all these areas.

Environmental Impacts

28. To assess whether it is desirable to change the diet information is needed on the environmental impact of land use change. It's not enough to know the environmental impact of the existing pattern of production.

29. In respect of evaluating land-use changes for dairy farmers in the UK, account would have to be taken of fact that production decisions by farmers are driven by market signals and consumers are free to choose what they want. If a message was communicated by government to change patterns of consumption, and in particular to reduce the consumption of dairy products, there is no telling precisely how that signal will manifest itself in the market place. Possible outcomes could include:

- — Demand would fall and the resulting market signal would encourage dairy farmers to switch to beef and sheep production, which would generate a worse environmental footprint.
- — Demand may not change, but the industry will lose any confidence about its future and reduce its investment. The result will be that production will slowly being exported.
- — Domestic demand changes, but export demand does not, so the industry focuses on growing markets in the Far-East, with consequential additional transportation impacts.

30. In respect of evaluating land use changes for the products that could be substituted for dairy the challenges may be even harder. For example, the only readily available substitute for liquid milk is soya drinks. Greater demand for soya means usually means land use changes. Consumers could be encouraged to switch to soya grown sustainably, but this would not address the issue of displacement. This is because any increase in production of "sustainable" substitutes to meet increased demand could, by a process of displacement, result in an increased in unsustainable production elsewhere.

31. It should be noted that the dairy industry already uses soya as a feed input, but the volumes involved are miniscule, and could best be addressed by the Dairy Roadmap.

Economic Impacts

32. Relevant aspects that would have to be considered under the economic pillar of sustainability would be employment issues, current levels of economic activity, resource efficiency, and possibly most importantly, food security.

33. The Government's policy is for trade to be central to achieving global food security. Trade implies countries specialising in those products for which they have a competitive advantage and in which production is sustainable.

34. The UK is ideally suited climatically for the production of dairy products. As an efficient and predominantly grass based industry, the UK dairy industry has a lower environmental footprint than other countries. On this basis food security policy may require the UK to increase its production of dairy products. This would stand in apparent contradiction to any policy to reduce the consumption of dairy products. These messages could create confusion in the minds of consumers and those considering investing in the industry.

Nutritional Impacts

35. With regard to nutrition, the nutrient contribution of dairy foods to the GB diets was set out earlier in this document. Given the substantial contribution dairy foods make to the GB diet, any recommendation that resulted in a reduction in dairy consumption would ultimately impact on the dietary adequacy of population groups.

36. Consumers would need a significant amount of nutritional knowledge to replace the nutrients dairy foods provide using other foods. For example, they would have to know the quantities of nutrients in other foods so that they could make up for any shortfall in nutrients in their diets resulting from a reduction in dairy intake. They would also need to understand concepts such as bioavailability which is particularly important for calcium.

37. The calcium in dairy foods is highly bioavailable—it is present in a form easily absorbed by the body. This compares with the soya in calcium which is less bioavailable than the calcium from cows' milk.

38. The potential negative impact of removing dairy from the diet has been shown in the existing literature on individuals who do not consume milk and dairy foods, or who consume only limited amounts. Dairy-avoiders tend to have lower intakes of calcium and a short-fall of other nutrients, including protein and riboflavin, has also been reported. Poorer bone health is a consistent finding in those with a history of long-term avoidance of cows' milk and dairy foods.

39. Therefore making recommendations about food consumption on the basis of sustainability without taking into account the possibility that shifting dietary patterns may negatively impact on the nutrient status of the population is not appropriate.

Trade-offs and Implementation

40. Economic, environmental and social issues have to be traded off against each other. There does not appear to be any form of approved methodology to do this.

41. There are considerable challenges to implementing any policy based on changing patterns of consumption. Consumers could be implored to change their dietary patterns and the Government could supplement this with standards for government catering contracts. Choice editing may also be available to a degree, but it's quite possible that with the limited policy implementation options available the outcome could be negligible. They would be certainly less predictable than a production efficiency approach based around Roadmaps.

Question 4: *Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?*

42. The greenhouse gas impact of dairy is misunderstood and exaggerated. Recent reports have shown that the contribution from the dairy sector is relatively limited and, despite rising milk production, emissions have been falling through efficiency gains throughout the supply chain.

43. Considering just global milk production, processing and transportation, and excluding meat production, the dairy sector contributes 2.7% of global anthropogenic greenhouse gas (GHG) emissions as proven by the United Nations Food and Agriculture Organisation's report "Greenhouse gas emissions from the dairy sector" and supported by a report from the Dutch research institution CE Delft. If emissions related to meat produced from animals originating from the dairy system is added, the sector accounts for only 4% of all global anthropogenic GHG emissions.

44. The milk industry's competitive environment, energy-intensive operations, environmental targets and customer demand have resulted in a proactive approach to energy efficiency and cost reduction.

45. In 2009 and 2010 the Carbon Trust worked with the dairy processing sector to understand energy use in raw milk processing and to identify opportunities to improve efficiency. The opportunities indentified were in three broad concepts: low temperature pasteurisation, alternative homogenisation techniques, and reduction in CIP water consumption and temperature. There are also other potentially cost-effective good practice improvements already available to the dairy industry, including scope for further process optimisation and the use of heat pumps to recover energy from refrigeration units.

46. Dairy processors, as part of the Climate Change Agreements, have improved energy efficiency by over 27% in the last 10 years, saving over 200,000 tonnes of carbon annually.

47. Dairy farmers are reducing emissions, through increases in efficiency, reductions in fertiliser use, and better slurry and manure management. The dairy industry has funded a three year project to determine a crucial benchmark through the measurement of carbon footprints on GB dairy farms. The project will identify "hot spots" on-farm where business efficiency can improve, whilst reducing carbon at the same time. Building on the Dairy UK, DairyCo and Carbon Trust work on carbon footprinting, the initiative will establish a national annual average figure for greenhouse gas emissions. This realistic indication of emissions from dairy farms will allow the industry to monitor progress in achieving the targets laid out in the Dairy Roadmap. This project will also report any mitigation or abatement opportunities investigated by the participating farmers and what impact these strategies have had on their carbon footprint.

Question 5: *How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?*

48. Reducing the distance raw milk and processed milk products are transported may generate no positive environmental benefits; instead it may have the reverse effect.

49. In the dairy sector transport costs are a small portion of the total costs of production and processing. For liquid milk, transport costs can represent only 5% of total costs. Reducing the distance raw milk or processed product travels does not necessarily result in a reduction in transport costs. Local supply chains can be more fragmented resulting in smaller volumes being supplied per delivery. This could drive up transport costs.

50. Local milk processing could also result in higher processing costs. Key to processing efficiency is scale of operating plant to achieve economies of scale. Smaller plants serving particular locales will have higher unit costs and therefore probably a higher environmental impact.

51. However, provenance and local supply can be a way of increasing the value of market returns if consumers are prepared to a pay a premium. Higher market revenue could therefore assist in the economic sustainability of some producers and processors.

Question 6: *How could Government procurement practices be improved to promote better practice across the food sector?*

52. Government procurement practices could be improved by giving preference to sourcing food from industries that have formulated Roadmaps that commit their respective sectors to improving their environmental performance. In particular, preference should be given to individual companies that have committed to the delivery of Roadmaps and which are able to demonstrate that they are meeting or exceeding industry targets. This would give a further market incentive that would enhance the effectiveness of Roadmaps as delivery tool for achieving environmental change.

28 March 2011

Written evidence submitted by GM Freeze

SUMMARY

— Food production, processing, packaging, transport and consumption patterns have direct impacts on the environment and climate change.

— Big decisions are needed by Government and food companies to bring food production and consumption into harmony with the needs of the planet and a healthy population.

— There is no present shortage of food, and by addressing food chain waste and overconsumption there should be no shortages in 2050.

— Agriculture is a major contributor to climate change, but if managed correctly can assist greatly in pulling human consumption back into a favourable balance with the long-term needs of the planet over the next few decades.

— Agroecological methods of farming need to adopted in order to reduce reliance on non-renewable resources and restore ecosystems and biodiversity while simultaneously producing a wholesome and balanced diet.

— A significant shift is needed in emphasis and allocation of UK agricultural research and development funding from genetics/genetic modification to agroecology and traditional plant breeding.

— Management of all organic waste and effluents should be a major priority to ensure that plant nutrients are returned to the soil without polluting.

— Fisheries policies must end over-exploitation of some species and adopt measures to ensure that other species don't follow the same pattern.

— The model of intensive aquaculture and livestock production needs to be dropped in favour of extensive grass and vegetable fed systems to end reliance on imports of soya and maize from countries where production is highly destructive and detracts from food sovereignty there.

— Farming as an occupation needs to be made attractive to young people, who require access to land and support to develop viable businesses.

— The imbalance of economic power in the food chain in favour of retail, agricultural input and commodities companies should be redressed to favour farmers and consumers.

— Government at all levels can stimulate the market for agroecological food production through procurement policies.

— There should be an immediate moratorium on the sale of county council smallholdings and the development of a strategy to open up land to young entrants through schemes such as share farming and community supported agriculture.

— Government must ensure that embryonic agroecological-based food business have access to capital at affordable rates to ensure the required agricultural revolution is not strangled at birth.

— Localism can play an important part in enabling development, allowing strong local agroecological food supply businesses to grow and encouraging links with all neighbouring communities including those nearby in cities.

GM Freeze

1. GM Freeze is an alliance of 24 organisations calling for a moratorium on GM foods, the growing of GM crops for any purpose and on patents on genetic resources in agriculture, food production and forestry until the need for and safety of GM technology has been established and alternative approaches have been fully evaluated.

2. Our members include consumer groups, farming organisations, environmental groups, development agencies, religious groups, animal welfare groups and food companies.

Introduction

3. Planning sustainable food production has to be based on the widest possible definition of sustainability so that environmental, health, social, economic, cultural and political issues are all considered. In recent years UK Governments have placed strong emphasis on the need for "science based" decision making in the regulation of food production and food safety, no more so than in the approval of GM crops for import or cultivation.

4. However, it is hard to think of any development in food production in the last 60 years that has been based entirely on science alone, and all have involved social, economic, political and cultural factors to some degree, in addition to scientific analysis. For instance the decisions made about feeding cattle brains back to cattle in the 1980s was heavily influenced by cost cutting rather than following a purely scientific approach and application of the precautionary principle. The BSE epidemic was eventually brought under control by the proper application of precautionary principle and political decisions influenced by public reaction to feeding cattle remains to cattle. Thus decision making can and must be guided by factors other than science alone.

5. Although science has and will play a vital role in developing a sustainable food chain, scientific analysis can prove to be unreliable and lead to unsafe decisions. This is often because insufficient data are available, or have been wrongly interpreted, or new information has become available but is ignored, or simply because understanding develops over time. Active ingredients of pesticides have been banned or restricted because information was missed at the time of approval (for instance the initial approvals of the hormone weed killer aminopyralid failed to notice that the product passed through the guts of animals (particularly horses) and into manure which if applied to certain crops could kill them[79]). In more recent times, the widespread use of glyphosate on genetically modified herbicide tolerant crops has highlighted many possible direct and indirect impacts on health, biodiversity and the soil that were not picked up by regulators relying on limited data.[80]

6. Science is also influenced by the outside world, in particular who is funding the research, and this can introduce bias into analysis (for instance the overstating of potential of a GM trait). There are also many different approaches to science (for instance, reductionist and holistic), and these can influence the outcomes of scientific processes (for instance, in how the precautionary principle is applied when there is scientific uncertainty).

7. We will now deal with the specific questions raised by the Committee.

How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?

8. The environmental and climate change impacts of food are substantial and can be influenced by a numbers of factors, including:

[79] See http://www.pesticides.gov.uk/garden.asp?id=2799

[80] PANAP, 2009. Glyphosate www.panap.net/sites/default/files/monograph_glyphosate.pdf

1. Methods of production used.
2. Degree of processing of food.
3. Distance raw materials and processed food are transported.
4. Amount of packaging.
5. Length time food is stored.
6. Wastage along the supply chain.
7. Methods employed to manage wastage.
8. Impacts on biodiversity in agriculture, the agroecosystems and other neighbouring habitats.
9. Type of diet consumed.

9. To reduce the environmental and climate change impacts each area must be addressed systematically, and all together in an integrated way. The recent Green Economy Report by UNEP[81] showed that 4600 kcal of food is produced for every person on the planet, but only 2000 kcal per person are actually was available to people because of wastage. In addition, there is huge difference in consumption between the rich and the poor, which currently results in 925 million undernourished people,[82] and 1,500 million overweight/obese[83] adults over 20 years needs to be addressed. It is therefore far more logical to address how to reduce losses and distribution of calories than to attempt to squeeze more production out of argoecosystems already under great stress from current bad agricultural practices.

10. The IAASTD report of 2009 concluded that "business as usual" in agriculture was "not an option." IAASTD,[84] De Schutter[85] and UNEP[86] all say the way forward is to adopt agroecological methods and to place far greater importance on the involvement of farmers in R&D and extension (especially women). These reports present an extensive body of evidence that farming using local natural resources to build fertility in soils could more than double yields and buffer the soils and farming communities against climate change, as well as enhancing water resources, marine ecosystems and biodiversity.

11. Application of the proximity principle to global food production enables unavoidable waste to be efficiently returned to the land, reduces food miles and enables strong links to be forged between farmers and consumers, if it is based on providing top quality fresh food at a price that is fair to all along the supply chain.

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

12. Past governments have repeatedly made the mistake of substituting cheap food for healthy food, and we are now seeing the consequences. Cheap food has been possible in the past by adopting methods of production that result in environmental harm, poor animal welfare standards and in poor quality, low nutrition, highly processed food. Cheap fossil fuel and a head-in-the-sand attitude by farmers' representatives to issues such as resource depletion and the impact that will have on input prices have encouraged farmers down an unsustainable path. The IAASTD report made it clear that this has to change if we are to restore ecosystems and combat climate change in the next 40 years. It is therefore essential that Government agricultural policy supports healthy and sustainably-produced food, and that people's ability to pay for food is also dealt with through employment and social policies rather continuing subsidise production of unhealthy foods.

13. There are clear roles for Government at all levels to provide good quality education on nutrition, food preparation and cooking, as well as the impacts of intensive food production and distribution on the environment. They can also do much to stimulate vibrant agroecological-based food production in the UK through public procurement policies, practices and waste management strategies.

14. Finally Government has a role in developing financial institutions to enable agroecological-based enterprises to access loans. The Green Investment Bank may fill this need once the details become clearer, but there may also be a need to provide structures through which people could invest in local food businesses more directly, such as a business-orientated local credit union. This could be potentially more transparent about where money was being invested to encourage people to support local sustainable enterprises.

How can consumers best be helped to make more sustainable choices about food?

15. As we have indicated above, the cheap food culture developed in the UK during the second half of the 20th Century and the marketing of food by the major retailers place great emphasis on the cost, rather than the

[81] UNEP, 2011. Green Economy Report. Agriculture Investing in natural capital. www.unep.org/greeneconomy/Portals/88/documents/ger/GER_2_Agriculture.pdf

[82] Ibid

[83] WHO, 2011. Fact Sheet 311 Obesity and over weight. www.who.int/mediacentre/factsheets/fs311/en/index.html

[84] International Assessment of Agricultural Knowledge, Science and Technology for Development, Agriculture at a Crossroads . Synthesis Report. A Synthesis of the Global and Sub-Global IAASTD Reports. www.agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Synthesis%20Report%20(English).pdf

[85] De Shutter O 2011. Promotion and protection of all human rights, civil, political, economic, social and cultural rights, including the right to development. Report submitted by the Special Rapporteur on the right to food, Olivier De Schutter www.srfood.org/images/stories/pdf/officialreports/20110308_a-hrc-16–49_agroecology_en.pdf

[86] UNEP, 2011. Op cit.

quality, of food. "Buy one get one free", loss leaders and promotions too often focus on processed foods (in which the ingredients can be drawn from all over the planet) instead of whole foods or fresh produce. Very little information on origins and methods of production are provided from retailers either on pack or at the point of sale (for instance someone buying a ready-made chicken curry will be offered very little information on where and how the chicken was produced and what it was fed, so they are unable to make informed choices). Some companies do emphasise where they source food and ingredients for their own marketing purposes, but this often does not allow people to make choices based on sustainability. For instance, a consumer buying a pint of non-organic milk will have no idea whether the dairy cows which produced it were fed GM soya from Argentina, where its production is driving habitat destruction and seriously degrading the quality of life in rural areas due to excessive use of agrochemicals and the displacement of mixed family farms with soy plantations.[87]

16. Consumers need clearer information about the origins of their food from retailers and manufacturers to allow them the option to make decisions based on sustainability.

17. Government needs to make policy and regulatory decisions that strongly push production toward agroecology and to ensure that labels on packs provide information on where and how the product was produced.

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

18. There are many aspects of the production of the food we consume that need to be addressed if it is not to continue to harm the very ecosystems and natural resources upon which we depend for that nourishment. To achieve such a revolution Government, farmers and industry will need to be bold and willing to invest time and money for the long-term. Consumers will need to support such changes. Fortunately the success of farmers' markets, box schemes and farm shops suggests that some members of the public and some farmers are ahead of politicians and many businesses in the food chain. There is also strong support for high-welfare standards for farm animals and firm opposition to the introduction of new technologies deemed to be unnecessary, such as GM crops[88] and cloning of farm animals.[89]

19. The following aspects of the food chain stand out as requiring urgent attention:

- Reliance on imported animal feed (principally soya and maize) produced in unsustainable monocultures heavily reliant on non-renewable resources for fertility and pest control.
- Heavy reliance on intensive production of meat, dairy and eggs with enormous environmental footprints across the world.
- Adjusting the balance in research funding, which is currently weighted towards genetics/GM research as opposed to other branches of agricultural sciences necessary to facilitate a transformation to agroecology.
- Lack of UK-based research and development for agroecological methods, including key disciplines such as basic agronomy, entomology, mycology, soil science and traditional plant breeding.
- Lack of UK-wide extension services, which could promote and train people in agroecological methods.
- Lack of clear targets for reducing industrial fertiliser and pesticide use on farms.
- Lack of training to enable people to meet industrial pesticide and fertiliser reduction objectives.
- Poor management of organic wastes on farm, resulting in losses of nitrogen to the air and in run off.
- Poor integration of organic waste management (including sewage sludge) to ensure that the nutrients and organic matter they contain are returned to the soil.
- Failure to capture important plant nutrients, principally nitrogen and phosphorus, in sewage effluent and return them to the soil.
- Food waste, which occurs at every stage of the supply chain—every effort should be made to minimise it and to ensure that unavoidable waste is managed sustainably to produce animal feed, biofuel and compost.
- The continued loss of small and family farmers around the world, and with them generations of knowledge, largely due to the imbalance in market power which prevents farmers getting a fair return on their labour.
- Poor access to land for people wishing to start an agroecological-based food production enterprise due to, for instance, the sale of county council smallholdings and high prices that restrict options for entrants.

[87] Friends of the Earth, 2008. Hoofprints: Livestock and its environmental footprint. www.foe.co.uk/resource/briefings/hoofprints.pdf

[88] Summary of 2009 opinion survey by GkF/NOP for Friends of the Earth www.gmfreeze.org/page.asp?ID=436&iType=1083

[89] See *Which?* Survey 2008 www.which.co.uk/about-which/press/press-releases/campaign-press-releases/food-and-health/2008/07/which-food-cloning-statement/

- Serious imbalance in market power in the food change in favour of retailers and commodity suppliers, which has removed profits from many farms around the world and is a very strong disincentive to young entrants into agriculture.
- Failure to care for soil to ensure it is capable of absorbing and holding moisture, is stable, does not erode and provides a healthy environment for plant roots.
- Over-emphasis on annual arable crops as opposed to perennial food crops and agro-forestry approaches.
- Lack of long rotations, including courses when livestock can be introduced to build fertility or act as a crop break to control pests, weed and diseases.
- Over-reliance on imported fruit and vegetables to the detriment of UK producers at a time when UK-based growers should be supplying produce to help meet Government healthy eating targets.
- Over-exploitation of global fish stocks and over-emphasis on intensive aquaculture based on high-protein feeds to the neglect of other extensive system using vegetarian fish such as carp.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

20. There are a number of initiatives local authorities could undertake to make food more sustainable in their area, including:

- Procurement for schools and institutions from local agroecological producers.
- A moratorium on the sell-off of council owned small holdings.
- Support establishment of training in agroecological methods.
- Establishment of local clearing houses for landowners interested in share farming.
- Help and advice to establish farm shops, run farmers' markets and community supported agriculture schemes.
- Strategic planning with all landowners to establish wildlife corridors between farms, public land and into settlements.
- Landscaping schemes to specifically target pollinating insects by providing sources of nectar and pollen from spring through to autumn.
- Work with landowners to maximise the carbon capture and ecological potential of flood alleviate and defence schemes.
- Promote regional food and encourage people to use it.
- Promote local food businesses using locally-sourced food.
- Promote minimal packaging and maximum recycling to businesses and consumers.
- Encourage companies to re-design packaging to allow easy re-use and recycling.

The localism agenda needs to address:

- Making it easier to access land for growing and to allow rural businesses to grow by allowing appropriate development for storage and processing and affordable accommodation for owners and employees.
- Promotion of the local economy emphasising the multiplier effect of buying locally-produced food.
- Looking favourably on planning consent for renewable energy such as wind, hydro, anaerobic digestion and solar PV and water.
- Looking favourably on applications for highly energy efficient buildings, even though they may stand out at present.
- Looking favourably on applications for retail outlets and processing plants in favourable locations to maximise sales from sustainable food businesses.
- Opposing further expansion of the major retail chains.
- Developing educational and business links between rural food businesses and local city suburbs.

How could Government procurement practices be improved to promote better practice across the food sector?

21. There are many areas where procurement could be improved to support sustainable food production. Contracts could specify a check list including areas like:

- Proximity—buy as close to the point of consumption as possible.
- Fair trade—ensure the price paid enables farmers to be profitable.
- Prioritise agroecological producers by asking suppliers for evidence of their credential in this area or encourage them to expand in this direction.

— Encourage catering establishments in the public sector to source direct from producers.

28 March 2011

Written evidence submitted by Rhiannon Jehu

I work for one of the "big 4" as a shop assistant, as such I see the food processing industry close up day to day. I am writing a short note based on my experiences.

TO THE QUESTION

** How can the environmental and climate change impacts of the food we choose to eat best be reduced?*

1. *A premium should be charged for all foods transported by* air.

2. Local products should be advantaged in some way. I suggest that *taxation could be used on transportation, but not on food*, a sort of "fair trade" for local producers. (Of course the concept of local would have to be decided upon).

3. Freight should be encouraged to travel by rail not by trailer.

TO THE QUESTION

** How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?*

1. Encourage people to grow their own food on brown field sites or local areas.

2. Remove the red tape that surrounds allotments.

3. Encourage councils to disperse resources:
    1. Collect organic waste.
        1.1 Distribute manure and composted organic matter to people who want it.

4. "Waste" and unused brown field land should automatically be put out to "tender" for local organizations to apply to use it for projects so no land is unused. *If a council or private organization has done nothing with a brown field site, then, after a certain length of time that land should be put out to tender.* A length of time would need to be identified to recognize unused land.

TO THE QUESTION

** How can consumers best be helped to make more sustainable choices about food?*

1. Price should reflect environmental impact. *Supermarkets should be stopped from doing BOGOF* offers and instead forced to use ½ price etc offers*.

2. *(Buy One Get One Free)

3. *Loss leaders should be banned—unrealistically low prices*.

(Both these offers encourage people to buy more than they need and lead to wastage or excessive consumption.)

TO THE QUESTION

** Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?*

1. Food miles—food transport is responsible for the UK adding nearly 19 million tonnes of carbon dioxide to the atmosphere each year.

2. Dependence on oil based fertilizers—oil is a finite resource and as such should be used to the minimum.

REFERENCE

http://www.climatechoices.org.uk/pages/food3.htm

29 March 2011

Written evidence submitted by Dr Ulrich Loening

There are times, in a wide ranging consultation like this one, when it becomes useful to go "back to basics." Food production and the satisfaction of the nutritional needs of the population are both social and biological matters. Therefore I preface my particular comments with the following general considerations, to provide a background.

Farming is now a major industry that from its very beginnings 10,000 years ago has created a separation between humans and the rest of nature—the biosphere. That after all, was the purpose, to provide food security even for those who did not farm. Yet this revolution followed a million or more years of human evolution during which the diet was dependant on and closely integrated with availabilities in natural ecosystems. It is not surprising that a separation from, and dramatic changing of, natural ecosystems has led to trouble as well as success. One simple example would be the evolution of taste, which guides acceptance of potential foods, but which now is out of balance with easy availability: too much salt and sweet food are no longer good for health.

My comments are based on the premise that society is ill-adapted to modern industrial ways of sustenance. There must be some biological and psychological value in a closer connection between people and their sources of nutrition, and when this connection is distanced, problems may ensue, both human and environmental problems. This may sound extreme to some, but it is not emotional or wishful thinking. Rather, it is a conclusion based on scientific judgement about how ecological interactions between species work, even if that scientific judgement lacks firm and specific examples. One can at least cite cases of ignorance that leave scope for diverse conclusions: for example, the Government's much promoted five-a-day of fruit and vegetables is based on long experience (stretching back at least to Darwin's grandfather Erasmus) that these promote health; yet the known constituents of vitamins, anti-oxidants, anthocyanins, etc, do not add up to the total perceived benefits; likewise the continued debates about the value of broccoli in reducing the incidence of colon cancers suggest more ignorance than understanding. (See for a recent review, S Deweerdt, (2011) Nature, 471, S22.)

Given that global food security and the environmental impacts of its production have reached a stage close to crisis, new decisions about the future have to be taken; yet taken on the basis of scientific evidence that is not quite up to the task. One can be certain only that the evolved system worked in a world of much smaller populations and that experience shows that the quality of nutrition is strongly related to a closeness to natural systems. Over-riding these, which has been the success of modern agriculture and at least temporarily delayed Malthus's prognosis, has resulted at the same time in the near crisis. Therefore new ways must be sought for agricultural innovation, as has been expressed by the IAASTD Report (2009) and this innovation must bring a re-integration between the human population and the rest of the biosphere. The question is how and even whether, this can be achieved.

I select two relevant books which have addressed the issues of this consultation; both at titled "From the Ground Up." The first is by Jorian Jenks (1950, Hollis and Carter); the second by Helena Norberg-Hodge and others, (revised edition 2001, Zed Books). Both deal with the interplay between the economy and provision of sustainable healthy food. There is of course a huge literature on the subjects overall. I use the bullet points as in the original notice of the consultation:

How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?

The first and major issue is of course the fuel energy used to produce food. Globally, the situation seems absurd: large amounts of energy are needed to fix atmospheric nitrogen for fertilisers, yet this has resulted in doubling the amount of soluble nitrogen that flows through the biosphere and greatly increased the quantities of nitrous oxide (a potent greenhouse gas) that is released. The cyclic processes of the biosphere have been successfully converted into the linear process of food production, the ultimate product of which is humans and their waste and atmospheric pollutants. Along with this, has been the serious depletion of soil mycorrhiza, which are inhibited by soluble nutrients. The direct scientific answer to the problem therefore has to be the re-cycling of sewage for fertiliser and soil humus. Obviously this would be a huge global change of technique, easily dismissed as crazy. Yet all the required technologies exist. In the industrialised world it would mean separating urban sewage waste from industrial, to the benefit of being able to re-cycle both more easily. In the developing world, it may mean introducing some novel but essentially simple techniques, many of which have been in use in China for thousands of years.

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

There has been much promotion of local food production, and most would consider this essential to achieve these aims. There are at least two other major considerations: one is that the supply of many foods will need to be more seasonal, at a time when most public do not need to have any idea about the season of the year when they are shopping. The other is that food is not, and cannot be, cheap. At present food production is in effect subsidised by environmental pollution. The costs of production are external as much as direct, (as researched years ago by Prof Jules Pretty, among others) At present the costs of food are less than 20% of income, often much less, in this country. In France they are routinely more than 20%. This is a reflection of

perceived value; in the UK people spend more of their income on other things they value, not food. "Affordable" is thus a relative measure. In addition, it appears that people are less inclined to cook imaginatively. Primary ingredients are at present remarkably affordable, but much food purchasing is of processed products. Encouragement of changing habits towards using the raw materials more, would allow more local production, be better for health and involve the population in its own well-being.

How can consumers best be helped to make more sustainable choices about food?

This has been partly addressed above. It is asking too much of people not to buy tomatoes way out of season and from distant countries, when they are presented in supermarkets, as the success story of supermarket. What is needed is "super markets" in place of supermarkets; places where local produce is readily available and where shopping could be coordinated such that one check-out point serves all stalls. The success of farmers markets throughout the UK suggests that such a move would be popular but is as yet on too small a scale.

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

I guess, but have no direct evidence, that the biggest single matter here is waste of food. This happens at all stages, from supply to consumption. Probably waste in storage is not as serious in UK as in many poorer countries, but waste in supermarkets is worse, as any still perfectly nutritious food that is nearing its shelf life is turned out. The interests of safety against degraded food is possibly negated by the common "collection" of such rejected supermarket foods by local residents. The waste in most households seems also to be extraordinarily high, like 30%. This is partly a matter for better education, partly a matter of price: higher prices might lead to less waste. In addition, the single biggest waste is the dumping of fish in excess of quotas, perhaps 50% or more.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

Where local authorities have promoted markets, these have been appreciated and successful. Yet in my local district, perhaps in all, the bureaucratic requirements are inhibitory, as is the cost of a stall and the restrictions on sizes of packaging etc. One wonders whether the powers of administration of markets could be devolved to local organisations, to provide a freer and simpler system. The markets also need to be frequent enough to make a significant contribution to the sustainable supply of food.

How could Government procurement practices be improved to promote better practice across the food sector?

I am not in a position to comment much here. However, the provision of hospital meals is relevant here, and requires gross overhaul. It is crazy for one supplier in Wales to send frozen meals all over the country, as I am informed is the case. This has become so bad, that one retired medical consultant commented, after a spell as a patient in hospital in Edinburgh, that the food alone is capable of making him ill. If ever there was a cost efficient way to improve the National Health Service, it would be to provide healthy food for the ill.

30 March 2011

Written evidence submitted by the Campaign to Protect Rural England

Introduction

1. The Campaign to Protect Rural England (CPRE) welcomes this inquiry, which is timely when economic considerations are having a powerful influence on the decisions consumers make about the food they buy. As an organisation concerned with the economic, social and environmental sustainability challenges faced by both urban and rural communities, as well as the countryside, CPRE takes a keen interest in sustainable food production issues. We are committed to helping reconcile the interests of the public and the farming industry in the management of our farmed landscapes. We have drawn on our current and previous work on food security and food sustainability issues in responding to this inquiry.

Executive Summary

2. CPRE believes it would be perverse to deplete the quality of our natural resources and environment in a drive to boost food production. The UK should take a lead in demonstrating that environmental sustainability is at the heart of its food production, rather than relying on short term productivist policies which deplete the natural asset base to the long term detriment both of production and those assets. The globalisation of food production has failed to address the critical issue of ensuring supply and distribution networks deliver food to where it is most needed while avoiding serious environmental degradation. There is a need for caution in determining how much this country can contribute to meeting global targets for food production given its land area and society's commitment to high ethical and environmental standards.

3. Land use is at the heart of the debate about sustainable food production. Making decisions about how to allocate land for different uses has become more complex as society makes increasing and more varied demands on this finite resource. In terms of food production it is important to establish clear policy objectives to ensure our food is produced sustainably while the character and distinctiveness of our countryside is maintained and enhanced. In establishing new polices to achieve these aims CPRE believes we need to learn the lessons from the unintended consequences of previous drives to increase food production. The demand to produce more food must not lead to even greater environmental damage and further inequalities of food supply and distribution.

4. Greater integration of environmental and food policy measures would help to improve food sustainability. A food and environmental strategy should be developed building on research to bring together farming and food industry initiatives and Government policy measures. The previous Government's food strategy, *Food 2030*, was criticised for being unclear about the actions needed to achieve its aims. It should be reassessed and reinvigorated to ensure there are clear actions for the production of sustainable food, with additional indicators to provide information on key aspects of environmental and social sustainability.

5. Retailers should encourage more sustainable production by increasing premium payment initiatives to more farmers who produce food using environmentally sustainable methods. Retailers should then internalise some of this additional cost so that consumers do not resort to buying cheaper but less sustainably produced food. The issue of waste throughout the food chain also needs to be addressed more proactively by both Government, food processors and retailers.

6. Local food networks have an important role to play in educating the public about food sustainability issues. These networks should receive greater Government support. Creating healthy domestic agricultural sectors will also require greater investment in providing regional and local food processing and packing facilities, including abattoirs. Otherwise, there will be increased greenhouse gas emissions resulting from the greater distances travelled between farm-gate, processors and retailers. Increased transport costs can add to the production costs of local food producers, which could threaten their economic viability, reducing the diversity of the supply chain. Additionally, there will be a need for not only traditional land management skills but a range of new skills for sustainable production for those who manage our countryside and make a living from producing food.

How can the environmental and climate change impacts of the food we choose to eat best be reduced?

7. More detailed aspects of this question are answered in response to subsequent questions. However, to frame our response CPRE would like to draw attention to the following statements:

> "The political reality is that sustainability cannot be pursued in the absence of food security." (*The Future of Food and Farming—Challenges and choices for global sustainability*, Foresight Report from the Government Office for Science, January 2011)

> "Simply ratcheting up the fertilizer and pesticide-led production methods of the 20th century is unlikely to address the challenge. It will increasingly undermine the critical natural inputs and nature-based services for agriculture such as healthy and productive soils, the water and nutrient recycling of forests, and pollinators such as bees and bats." (Achim Steiner, Under-Secretary General of the United Nations and Executive Director of the United Nations Environment Programme [UNEP])

> "Agricultural knowledge, science and technology (AKST) can increase sustainable agricultural production by expanding use of local and formal AKST to develop and deploy suitable cultivars adaptable to site-specific conditions; improving access to resources; improving soil, water and nutrient management and conservation; pre- and post harvest pest management; and increasing small-scale farm diversification. Policy options for addressing food security include developing high-value and underutilized crops in rain fed areas; increasing the full range of agricultural exports and imports, including organic and fair trade products; reducing transaction costs for small-scale producers; strengthening local markets; food safety nets; promoting agro-insurance; and improving food safety and quality." *(Agriculture at a Cross Roads,* The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) report, 2009)

8. CPRE believes that the statements from these three important reports indicate that the following key actions are required:

Ensure food production systems maintain and restore landscape character and biodiversity

9. In many parts of the world, including in England, there have been serious declines in biodiversity and soil and water quality, and rural landscapes have become increasingly homogenised. CPRE believes that greater intensification, the ill-advised use of some agri-chemicals and drives to improve efficiencies in farm practices at whatever cost have damaged much of the character and quality of the countryside, its wildlife and habitats and its soil and water resources. The pressure to increase and intensify production of crops or livestock should not undo the billions of pounds and years of investment that have been spent to improve the farmed environment to enhance its landscape character and protect important wildlife habitats. In addition, the many issues arising from climate change have further complicated the challenges that need to be addressed to make food production environmentally sustainable.

10. A combination of legislation and a number of policy measures and initiatives have been developed to help resolve some of these problems and challenges including Environmental Stewardship and the Farming Futures and Catchment Sensitive Farming initiatives. Some of these have made progress with at least stabilising the damage that has been done over time and in maintaining some landscape features, although in terms of enhancement and restoration of landscape features and habitats an enormous challenge remains. CPRE is concerned that funding for these important initiatives and policy measures that could help to improve the sustainability of food production is often threatened, and in some cases has been withdrawn (a recent example being the funding for Farming Futures). This creates uncertainty amongst farmers and land managers about long term investments in the actions needed to make food production more environmentally sustainable, undermining progress towards achieving this objective.

Ensure food production systems maintain and protect soil and water resources and contribute to reducing greenhouse gas emissions

11. While much attention has been devoted to water sustainability issues in recent years, less effort has been focused on our soil resource. The Water Framework Directive has driven much of the action taken to address water quality issues. In the absence of a European Union Directive on soils, however, measures to address soil issues have been applied rather haphazardly through cross compliance and agri-environment measures.

12. It is particularly important that the inter-relationship between soil and carbon storage is given more attention. The recent *Foresight Report* quoted above states that there is nearly as much carbon in the organic compounds contained in the top 30cm of soil as there is in the entire atmosphere. This makes it essential that we improve the organic content of soils and protect those soils, for example peat, that provide the greatest potential to increase the amount of carbon they can store.

13. The Government's 2009 soil strategy (*Safeguarding our Soils—A strategy for England—Defra—September 2009)* reported that over the last 200 years our soils have become degraded due to intensive agricultural production and industrial pollution. Soils in England continue to face three main threats:

- — Erosion by wind and rain. This affects the productivity of soils, and also water quality and aquatic ecosystems;
- — Compaction, which reduces agricultural productivity and water infiltration, and increases flood risk through higher levels of runoff; and
- — Organic matter decline. The loss of soil organic matter reduces soil quality, affecting the supply of nutrients and making it more difficult for plants to grow, and increases emissions to the atmosphere.

14. Soils have a critical role in filtration, assisting ground water replenishment which in turn can support food production (for irrigation, particularly of vegetable crops) and slow run-off protecting land from flooding.

15. CPRE has welcomed the Government's commitment to re-examine Best and Most Versatile (BMV) agricultural land policy. CPRE does not believe that current planning policy with respect to BMV land gives adequate recognition to the importance of soils. The planning mechanism for soil protection is weaker since the publication of Planning Policy Statement (PPS) 7 in 2004. Under PPS7 protection of soils was downgraded, making the sealing and loss of agricultural land more likely. Despite some challenges on particular sites, the overall focus of national planning policy to direct new housing development towards previously developed land in urban areas and away from greenfield agricultural land has helped to minimise the permanent sealing of soil by development. CPRE believes that in the future it will be important for land to have multifunctional roles, but the abolition of brownfield targets for housebuilding is also likely to contribute to creating conflicts over land use. The loss of agricultural land at the edges of towns will reduce the opportunities for local food production.

16. In a localised planning system there are risks that short term development gains will weigh more heavily than soil protection for a local planning authority, and that significant amounts of high quality land could be lost if national policy is not strengthened to balance more localised development objectives. Fertile soil needs to be seen as a strategic asset in an increasingly volatile world. For example, where appropriate, Grade 1, 2 and 3a land will need to provide areas of wildlife habitat that enable the carbon and organic content of the soil to be recharged to help to maintain soil quality and biodiversity and to contribute to efforts to mitigate the effects of climate change.

17. The Agricultural Land Classification System (ALC) was established in 1966 and took no account of climate change and its effect on soil capacity. CPRE believes there is a need to reassess the potential of land and its soil resources to produce food, fuel and other commodities. We look forward to the Government's detailed proposals for reviewing BMV land policy as part of the National Policy Planning Framework.

What are the land-use trade-offs that affect food production and supply and how should these be managed?

Food production and the provision of environmental public goods

18. Following the Second World War both the CAP and national agricultural policies in the UK sought to increase food production. Although ultimately successful in this aim, these policies caused widespread damage to the rural environment. Over the last 20 years, a gradual shift in policy, regulation and funding has started to

slow and in some cases reverse this damage, with very little reduction in the quantities of food being produced. The issue of food security and sustainability raises questions about the level of resilience of UK farming businesses to world competition; the export of environmental damage through the raising of environmental standards at home; and whether these standards pose an opportunity or a threat to the viability of our own farming communities.

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

19. The need to consider both healthy and sustainable food in responding to this question raises many and complex issues (including food quality, nutritional value, primary production, and processing), and makes providing a comprehensive response challenging. CPRE urges the Committee to focus on the following key issues.

Reform the CAP to focus on rewarding farmers for production of environmental public goods and ecosystem services

20. CPRE has previously identified the strong inter-relationship between economic and environmental and social sustainability. There is no question that by its very nature agriculture perfectly encompasses the three pillars of sustainability. The *Living Landscapes* research CPRE undertook with the NFU in 2006 made it clear that a weakness of the UK's food production system is the reliance of many farmers on payments from the CAP for their businesses to remain economically viable. The cessation of the Single Payment is likely to have a profound impact on the profitability of some farming businesses and therefore on rural communities. Some beneficial land management activities that maintain landscape features and habitats will become less easy to accommodate within farm businesses' calculations, potentially adding to the loss of landscape character and biodiversity.

21. We would like to see the CAP evolve into a European Sustainable Land Management Policy. The policy should reward farmers for the full range of environmental public goods and ecosystem services that are produced through farming activity, while also allowing sufficient provision of high quality food and renewable energy. Such a policy would help with the price volatility issues faced by farmers caused by extreme weather, global or regional economic instability and political events that could disrupt supplies.

22. There is also a need to examine the basis upon which payments can be made for public goods and ecosystem services, including welcome animal welfare obligations and ecosystem service provision within globalised trading rules. Means need to be found that permit sufficient incentives to be provided to ensure that the provision of public goods and ecosystem services can continue. Otherwise, there is a risk that indirect costs to society from food production, in terms of damage to soil and water quality and condition, as well as to landscapes and wildlife, will escalate in the long term. Upland farming could provide a good starting point for developing a basis for providing payments for delivering ecosystem services. Good management of peatland soils delivers a range of ecosystem services, including landscape character, biodiversity and carbon storage and storage and management of water; maintenance and enhancement of these services should be rewarded. This multifunctional approach to land use could encourage more mixed farming and diversify income streams to make upland farming more economically viable.

Promote and support local food networks

23. In 2006 CPRE joined a partnership led by the Plunkett Foundation in submitting a bid to the *Changing Spaces* Programme of the Big Lottery Fund. The full portfolio of projects is entitled "*Making Local Food Work"*. The programme aims to show how the needs of land and people, producers and consumers are interdependent, and that community enterprise can make these connections in a mutually beneficial manner. In particular, the programme is developing and supporting models of community food enterprises such as community supported farms and shops to increase access to local food. Further information is available from http://www.makinglocalfoodwork.co.uk/about/fwm/index.cfm

24. CPRE's contribution to the programme is a project supported by Sustain—*Mapping Local Food Webs*—which has equipped community groups in 19 towns and cities to survey, map and document their local food networks or "webs." We will shortly report on and disseminate these findings to local, regional and national policy and decision makers to promote supportive policy changes. For the project a food web is defined as the network of links between farmers and growers, processors, suppliers, local food shops and other local food providers such as farmers' markets, box schemes, community-supported agriculture and food cooperatives, through to consumers.

25. The project has engaged local volunteers directly with interviewing local food outlets and producers to develop understanding of where and how food is produced and sold within local areas. It has brought local residents, businesses and councillors together in workshops to explore problems related to the availability of local food. By using the data collected to document and produce maps of the local food webs we aim to increase knowledge and awareness among the wider public of where food comes from, how it is produced, distributed and sold and the benefits that can arise for the community, local economy and the wider environment. The project should encourage people to support their local food networks through where they

shop and what they buy and help secure the long term viability of local food businesses from retail to primary production, and through this, benefit the management of the countryside. CPRE would like to see more Government support for establishing and sustaining local food networks.

Clearly define the meaning of sustainable intensification and devote resources to research into agro-ecological farming practices

26. Following on from the publication of the recent *Foresight Report,* CPRE believes the Government should more clearly define what it meant by the term "sustainable intensification." This will be particularly important if the Government is to make good on its pledge to work in partnership with consumers to ensure the UK leads the way in developing this concept. In parallel, we would like to see more attention devoted to the opportunities presented by agro-ecology, as the food sustainability debate is becoming increasingly focused on issues of scale, and characterised by the polarising perception that farming is no longer "agri-cultural" in nature but agri-industrial. The recent Nocton "Mega Dairy" proposal in Lincolnshire is an example of what some might consider to be termed sustainable intensification. However, despite the claims that such developments would in some ways be more sustainable than traditional dairy farming, there were concerns in other areas, most notably, in the case of Nocton, around water quality. CPRE is disappointed by the seeming lack of Government enthusiasm for an analysis of what the rise of large scale agricultural production units such as Nocton and Thanet Earth, in Kent, might mean for the economic viability of smaller and medium sized farmers, for the environment and the character of our landscapes.

Fund research into developing sustainable production practices that minimise environmental impacts and over-reliance on technological inputs

27. The intensification of land use and increased use of agri-chemicals and biotechnology may have increased global food supplies but this has often been at the expense of the broader environment, due to high external inputs of inorganic fertilisers, herbicides and pesticides which are responsible for damaging ecosystems and result in greenhouse gas emissions in their manufacture. This approach has also failed to prevent significant numbers of people experiencing continued starvation and malnutrition. In some areas pollution by agri-chemicals and the erosion of soils and depletion of aquifers has exacerbated these problems. Future increases in production must avoid the use of environmentally damaging methods. Some production systems will need to be maintained where they are essential for the continued quality of important habitats and landscapes, for example extensive livestock grazing in the uplands. However, making these systems both profitable and environmentally sustainable will require the use of support measures including agri-environment schemes and the development of payments for the ecosystem services that are being provided. There is also a need to continue to promote the Integrated Farm Management approach that LEAF has championed for the last 20 years.

28. CPRE believes the provision of agricultural training programmes that include both production and environmental land management skills will be vital to delivering sustainable farming in the UK. There now appears to be a polarisation, however, between training in agricultural skills and traditional land management skills, where once these would have been one and the same. Measures in the Rural Development Programme for England should be used to help to provide the training that is needed.

29. Research and development should not focus purely on new technologies but also examine how low input systems for growing food locally and sustainably could be used by community groups. CPRE believes it is important to involve increasing numbers of people in food growing, not only so that they can produce their own food, but also so they can learn more about the process and appreciate the environmental questions around food production. Transfer of knowledge in this way contributes to creating a more informed body of consumers which could in turn help to increase people's commitment to buying more sustainable produce through established food retail outlets.

How can consumers best be helped to make more sustainable choices about food?

Empower consumers with the information they need to make meaningful and balanced decisions about price, nutrition, quality and sustainability issues when choosing what food to eat

30. As a society we have become very separated from how our food is produced and unrealistic about the price we pay for it. For example, we assume we can eat what we want whenever we want to eat it and, regrettably, if we don't want to eat it, simply throw it away. This presents a considerable challenge for Government in promoting sustainable food production. There are many factors to consider in defining what constitutes a sustainable food consumption choice according to the accepted definition of economic, social, and environmental sustainability. For example, the degree of sustainability could be determined by: price, ie products which might pay a premium to some farmers for milk or organic produce to increase their economic viability; health, by buying low fat or low sugar products; seasonality, for freshness and flavour, which in turn is affected by availability; quality; environmental impacts, which encompass an enormous range of choices; animal welfare; and, provenance, which can include decisions about buying British and/or local food products. The choices presented will also be affected by Government policies for planning, agriculture, international trade, the environment, transport, the requirements supermarkets place upon farmers and the ability of farmers to meet these requirements.

31. What has been termed the "Tyranny of Choice" can be unhelpful when it comes to developing sustainability labelling, not only because of the range of different brands for the same type of product, but because also of the complexity of the environmental and other sustainability trade-offs consumers are expected to make decisions about. For example, should a consumer buy a locally but intensively reared chicken rather than an organic, free range chicken reared 100 miles away?

32. Consumers' choice as to how sustainably they eat can be mediated by the context in which they shop. Choice will be affected by the location and types of shops people have access to as well as on choices within those shops and outlets. This in turn depends to a considerable extent on the wider policies which shape the planning of towns and the food retail outlets within or close to them. Much will therefore depend on who is presenting consumers with choices, as this will define the extent of the choice to be made. It is important to reflect on this point because to have what could be called an "authentic choice", real alternatives must be provided. It could be argued that the consolidation of food purchasing into the hands of a few major retailers narrows consumer choices (both in terms of where food is bought and the type of food bought) due to the economic rigours of their operating model.

33. Supermarkets often claim that what they sell is dictated by the consumer, so if people want to eat strawberries at Christmas, they must respond to that demand. But there is a question about whether people really decided at some point that they wanted to eat strawberries at Christmas or in fact they choose to buy them then because supermarkets started supplying them in the middle of winter. In any case people have become accustomed to strawberries being available all year round and it is unlikely that supply will ever again be limited to a few months in the summer. The example of all year round availability of strawberries illustrates the complexity of the choices consumers might make in terms of sustainability; there is some consumer awareness of issues around air freighting of some types of produce, but concerns over environmental sustainability are countered by aspects of social sustainability such as the creation of jobs and providing hard currency for the economies of developing countries. Horticultural producers in the UK have also responded to the demand for all year round availability of produce, for example by increasing the use of polytunnels to capture some of the market share.

34. Choices are also complicated by the fact that trade rules can make promoting goods on the basis of the sustainability of their provenance difficult. For example, promotion of domestically produced foods must be based on distinguishing production criteria that do not infringe trade agreements. While in some ways this makes sense, as just being a British product doesn't necessarily automatically guarantee better sustainability, it does add a layer of complexity to the ability of the consumer to make choices about sustainability based on provenance. For example, there are debates over whether New Zealand lamb is more sustainable in climate change terms than British lamb, and whether Spanish tomatoes are less energy intensive (in terms of heating and lighting use) than British ones. But these two examples are judged more sustainable on only one measure of sustainability.

35. Realistically, given the range of sustainability choices consumers might be provided with it is clear that it will be impossible to provide labelling on every aspect of sustainability alongside existing health and ingredient labelling. Even if we assume that price is not the predominant factor influencing purchasing behaviours in supermarkets, many consumers have often made purchasing decisions based on marketing and brand. To overcome this, a new, single indicator label is needed that indicates the overall environmental sustainability of a product, taking into account a range of factors (to take the Spanish tomato example again, these might include, among other things, energy use, transportation emissions, water use in arid parts of Spain and landscape impacts). This will require agreement on what indicators should be used to determine a food's overall sustainability, recognising that not all will be able to be used in all cases.

Continue to develop sustainability indicators so that Government, consumers and those who produce, process and sell food are provided with the range of information they need to improve sustainability

36. For all the criticisms levelled at it, as the first Government food strategy for 50 years, *Food 2030,* published in January 2010, was a welcome attempt to address the challenges of producing food sustainably. The use of indicators for monitoring progress in delivering a sustainable food strategy should be continued to help food producers, processors, retailers and consumers through the complex maze of choices about sustainability.

37. In our response to the consultation on *Food 2030* CPRE suggested a number of indicators that could help to identify progress on improving the sustainability of food production, processing and consumption. These included, among other things, indicators for food freshness and quality. An indicator could be developed which monitors the number of school or community education programmes or initiatives for improving diet or cooking skills which would be important to determine whether enough is being done to educate the public about the connection between health and food sustainability. In summary, we would welcome a re-examination of indicators for food sustainability.

Support and promote initiatives that educate the public about food sustainability issues

38. There is a long-standing need for greater education of the public about how their food is produced, and there are some notable campaigns to improve the level of understanding and knowledge, including LEAF's

annual Open Farm Sunday, the Year of Food and Farming in Education and Eat Seasonably. We were pleased at the recent announcement that Environmental Stewardship grants for visits to farms for under-16 year olds would be maintained. However, more must be done. We believe it is essential that continued effort is dedicated to increasing public understanding of the sustainability issues around food production and consumption. Retailers also have a key role to play and some have made a welcome start, for example the in-store and online information campaign run by M&S in conjunction with its Plan A initiative to become "the world's most sustainable major retailer", and the use of the LEAF Marque by Waitrose and others.

39. Given the proliferation of celebrity chefs and the much increased public interest in food and cooking, the development of food and culinary knowledge and skills within education should also be given more attention. The rise in consumption of convenience food and ready meals is perhaps evidence of a lack of confidence by people in their culinary skills. An important element of social sustainability is that people have adequate knowledge of what is in their food and how to prepare and cook it so they can choose to avoid processed foods. This issue is linked to health awareness, for example the "five a day" guidance, obesity issues and the ability to feed oneself well at low cost.

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

Food chain waste both during its production and processing and by consumers

40. UNEP's 2009 report, *The Environmental Food crises: Environment's role in averting future food crises,* found that up to 50% of food produced in the US is wasted, while a third of food purchased in the UK is never eaten. *Food 2030* identified that to 3% of total annual UK greenhouse gas emissions originates from food wasted by households. The current level of waste also costs households an average of £480 a year. CPRE believes the Government should urgently address the issue of waste in the food chain and identify measures to reduce it. It would seem logical to do this before taking any action to increase production. We recognise that in response to the *Foresight Report* the Government has said it will "showcase" best practice on reducing waste but, given the extent of the problem, a more proactive approach may be needed.

A negative view of the role of regulation in improving environmental sustainability

41. EU environmental and animal welfare legislation, agri-environment schemes and cross compliance are often alleged by some in the farming lobby to restrict the competitiveness of food production in the UK. This suggests the alternative might be for farmers to produce food to lower quality and environmental standards. Quite apart from environmental considerations, CPRE is not convinced that this would be an economically sustainable route as it would reduce the opportunities to benefit from the marketing advantage of added value and a reputation for quality.

42. We welcome the recent establishment of the Farming Regulation Taskforce and reassurances that its emphasis is on improving rather than radically cutting regulation. Reducing environmental regulation excessively in an effort to cut costs for farmers risks creating a race to the bottom that UK producers are unlikely to win. They will nearly always be undercut by countries with lower animal welfare and environmental standards. In addition years of effort that have gone into making food production more sustainable and establishing the credentials of UK farmers as producers of high quality produce that incorporates the highest environmental and animal welfare standards will be undermined. The reputation of farmers as custodians of the countryside, as well as producers of high quality food, should not be thrown onto a bonfire of regulations, and we do not believe that the majority of sensible farmers would support such an approach.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

Seize the opportunities presented by supporting local food networks

43. In the current economic climate there is a risk that cost and "value for money" decisions based solely on price, which result in the lowest cost option being chosen, may be the least socially and environmentally sustainable. For example, a Local Food Links initiative in Bridport provides an excellent case study that demonstrates the perversity of the procurement policy for schools in Dorset. The county council addressed the requirement for hot school dinners by commissioning a company in Nottingham to supply ready meals to schools in the county. Meals were delivered by road from Nottingham to be micro-waved in school canteens. In response schools in Bridport worked with Local Food Links to develop a project to provide fresh meals made from local ingredients which are delivered to schools in insulated containers. This means the schools are provided with high quality meals, local producers are supported and local jobs are created. An indicator on the amount of fresh, local produce that is being procured for the public sector could assist with assessing sustainability.

Address the power of the supermarkets and their effects on local economies

44. It is well known that there has been a serious decline in the numbers of traditional independent small food shops—butchers, bakers, greengrocers and fishmongers—which has gone hand in hand with the continuing

expansion of supermarkets and latterly superstores and hypermarkets. There have been undoubted benefits to shoppers from increased access to a wide range of foods, including convenience for those wishing to do a one-stop weekly shop and prices driven down by competition between national supermarket chains. However, CPRE argues that there is a strong need for policy at local and national level to ensure that local and regional food networks can coexist with national scale retailers which operate with largely national and international supply chains. There are a number of reasons this is imperative.

45. Supermarket expansion, especially into out of centre large retail sheds, threatens the viability of smaller independent stores on the high street and in villages. When such shops disappear, the choice of where to shop and access for those who do not use a car is diminished. Secondly, smaller outlets, and particularly the specialists such as butchers and greengrocers and village stores, are vital for smaller producers to bring their produce to market either directly or through the wholesale system. This alternative system to national supermarket chains ensures there is diversity of supply, a wider range of choice of produce, the highest degree of freshness and nutritional quality (as fresh produce is delivered through short supply chains) and, not least, a "seed-bed" for new small and medium sized food businesses to innovate and develop their product range before taking on the challenges of national markets. The potential loss of this alternative system through unconstrained supermarket expansion could therefore entail damage to the viability of smaller producers and diversity of farming, and undermine the opportunities for new entrants to farming and food production if there are fewer accessible markets for their produce. This could lead to the loss of smaller scale farms, and affect the long term sustainability of the farming industry. We welcome the Government's intention to re-introduce the "needs test" for out of town retail development and look forward to the publication of Government proposals to create a supermarket "adjudicator."

Support community involvement in agriculture

46. CPRE's food web mapping work has identified Community Supported Farms (CSFs) in many of the mapping locations. We are also partners with the Soil Association in the Making Local Food Work Programme which funding support and advice to people wishing to set up and develop new CSFs—see http://www.makinglocalfoodwork.co.uk/about/csa/index.cfm. Community supported agriculture (CSA) is a form of social enterprise where a food producer spreads their risk by offering shares in the harvest to "members" from the community. There are numerous associated benefits for the members, farmer and the wider community where the CSA is located. For members these schemes offer people the chance to learn about food production, to connect with the land and to obtain fresh local and seasonal produce directly from the producer. For the producer there are benefits from a fair, steady and secure income from members, the opportunity to raise further capital from the community and also to improve communication and understanding between the community and farmers. For the community and the wider environment CSAs offer opportunities for local work, reduced environmental impact of food through less packaging, more sensitive production methods and reduced transport of food, as well as wider social benefits of better understanding of food and farming. There are numerous other forms of community based provision, some of which are supported by the Making Local Food Work Programme, such as cooperative farmers' markets, home producers selling through Country Markets and local shops, community-run village shops and buying groups and food cooperatives, which can contribute to more diversified, localised and sustainable forms of food production, distribution and retail.

How could Government procurement practices be improved to promote better practice across the food sector?

Provide public sector bodies with clarity about tendering requirements for food supply contracts

47. CPRE believes the £2 billion spent by the public sector on food procurement could make a considerable contribution to supporting smaller producers selling into local markets, providing them with a significant outlet which could improve economic sustainability. Supporting local food enterprises can have a number of benefits in terms of social cohesion and providing local jobs. This would also help to improve the diversity of farming businesses, by supporting smaller scale production and potentially encouraging more sustainable forms of production. Such production could prevent the consolidation and agglomeration of farms which tend to supply larger food processors and retailers and would contribute to improving the diversity of locally produced foods. There seems to be a degree of confusion, however, about the competition rules for public procurement contracts among those putting these out to tender. The Government needs to take a lead in clarifying what is permissible and ensure that price considerations do not completely dominate decisions about suppliers by taking into account wider economic considerations and the positive role that new local food enterprises can play. In this respect we welcome the Government's work on: Government Buying Standards for food; the Collaborative Food Procurement Programme; the food and catering category under the European Commission's Green Public Procurement (GPP) initiative; training for Sustainable Food Procurement: and, developing a specific sustainable food-based training module for public sector food procurers. We look forward to these work streams improving the quantities of local food purchased by the public sector.

31 March 2011

Written evidence submitted by WRAP (the Waste & Resources Action Programme)

Executive Summary

1. This memorandum focuses on the value of food waste prevention and consumer engagement as part of the suite of measures which can help to improve the sustainability of food in the UK.

2. As set out in more detail below, food waste is a significant sustainability issue for the UK (and the world). In summary:

- The UK generates over 16 million tonnes of food waste every year, costing an estimated £22 billion a year;
- UK households throw away 8.3 million tonnes of food and drink waste, worth over £12 billion, every year. Most of this is avoidable; preventing it could save the average UK family £680 a year.
- The climate change benefits of tackling food waste would be equivalent to taking 1 in 4 cars off the UK's roads.
- The water footprint of avoidable food waste is 280 litres per person per day, approximately one and a half times the daily average UK household water use.

3. Food waste prevention can therefore deliver significant economic and sustainability benefits. WRAP has been working in partnership with others since 2007 to realise these benefits.

4. WRAP is the UK governments' delivery body for waste and resource efficiency issues. Further information on WRAP's role and remit is at Annex 1. Our evidence below covers the following issues:

- the nature and scale of UK food waste;
- why this matters: what the environmental impacts of food waste are, and how these can be reduced;
- what WRAP is doing with retailers and brand owners to make UK food more sustainable; and
- what WRAP is doing to help consumers make more sustainable choices about food.

5. Food waste prevention is a key priority in WRAP's new Business Plan, which will be published shortly. This will set out our priorities for the next four years. On food waste, we want to:

- work in partnership with others across the retail supply chain to drive an increase in the scale and speed of action, building on our work to date.
- expand our food waste prevention work to new sectors, including the hospitality, tourism and public sectors, with a particular focus on helping SMEs to take action; and
- help consumers to reduce food waste both inside and outside the home, building on our successful Love Food Hate Waste programme.

6. We hope that this evidence will be of use to the Committee, and would be happy to expand upon it further in oral evidence if that would be helpful.

Response to the Inquiry's Questions

7. The Committee's call for evidence includes six questions. We have focused our evidence on the first and third of these.

Q1. *How can the environmental and climate change impacts of the food we choose to eat best be reduced?*

The global picture

8. Increasing the primary production of food is only one of the many strategies that will be required to feed nine billion people sustainably and equitably by 2050. The challenge is to achieve optimal results right across the food system. This requires that substantial inefficiencies across the entire food supply chain—from the farm gate to the point of consumption—are addressed. Some estimates suggest that as much as half of all food grown is lost or wasted before and after it reaches the consumer,[90] although there are significant uncertainties and gaps in our understanding of losses in the food supply chain across the globe. In low-income countries, where infrastructure for storage and supply are often inadequate, food losses are greatest in early post-harvest stages, whereas in high-income countries, the greatest losses are usually incurred by the consumer.[91]

The nature and scale of food waste in the UK

9. Food and drink is a valuable resource and yet the UK generates over 16 million tonnes of food waste every year, costing an estimated £22 billion a year (equivalent to 26% of the UK agri-food sector gross value-added). More than half of this comes from households, with a further 3.6 million tonnes from the combined food manufacturing, distribution and retail supply chain.[92] The total also includes approximately 0.9 million

[90] Lundqvist, J, C de Fraiture and D Molden. Saving Water: From Field to Fork—Curbing Losses and Wastage in the Food Chain. (SIWI—2008).

[91] Foresight Project on Global Food and Farming Futures—Synthesis Report C7: Reducing waste (2011).

[92] Briefing memo—Food and drink waste arisings in the UK (WRAP—2010).

tonnes of food waste arising from the for-profit sector of hospitality,[93] although the amount of food waste arising in the rest of the hospitality sector is as yet unclear. Of the total amount, seven million tonnes of food waste reaches landfill.[94,95]

10. Most of the 8.3 million tonnes of food and drink waste UK households throw away every year is avoidable (5.3 million tonnes). It has a retail value of at least £12 billion,[96] and could have been consumed if it had been managed better.

11. There are many environmental, economic and health impacts associated with household food waste in the UK:

- Recent research, carried out jointly by WRAP and WWF, has found that the water footprint of avoidable and potentially avoidable food waste[97] is 6.2 billion cubic metres per year, representing nearly 6% of all UK water requirements. In per capita terms, this is 280 litres per person per day, approximately one and a half times the daily average household water use in the UK (150 litres per person per day).[98]
- We estimate that avoidable food waste is responsible for greenhouse gas emissions of 20 million tonnes CO_2 equivalent per year (accounting for the whole life cycle). Avoidable food waste represents approximately 3% of the UK's domestic greenhouse gas emissions, with further emissions from overseas components of the supply chain.[99] The climate change benefits of tackling food waste would be equivalent to taking one in four cars off the UK's roads.
- The amount of avoidable food and drink wasted as a proportion of all food and drink purchased in 2008 was significant, with different types of food and drink wasted at different rates:
  - 15% of all food and drink purchased was wasted;
  - 17% of all food purchased was wasted;
  - 32% of bread purchased was wasted;
  - 24% of potatoes and vegetables purchased were wasted;
  - 7% of soft drinks purchased were wasted; and
  - 6% of alcoholic drinks purchased were wasted.[100]
- Analysis of the nutritional content of wasted edible food and drink shows that *16% of calories were wasted.* Some nutrients were wasted much more than others (eg carbohydrates at 20%, fibre at 23%).[101]
- Looking at fruit and vegetables, 24% of edible vegetable purchases and 20% of edible fruit purchases were wasted. This is equivalent to 0.8 of a portion of edible fruit and vegetables wasted per person per day. This equates to the loss of *17 billion "five a day" portions* of fruit and vegetables each year.[102]
- Single person households wasted 22% of their food and drink purchases, and all other household types wasted 14% of their food and drink purchases.
- Preventing this food waste could save the average UK family *£680 a year.*[103]
- Local authorities spend over £300 million a year collecting and landfilling this waste.

12. Food waste prevention can therefore deliver significant environmental benefits, in terms of landfill avoidance, freshwater conservation and the mitigation of climate change. Raising awareness of food waste amongst consumers and providing practical advice to them can also help them to waste less and realise financial savings. Preventing food waste can also help to address other key strategic food issues, including supporting more healthy sustainable diets (through for example better control of portion sizes), food and water security.

WRAP's work with partners to reduce food waste and improve the sustainability of the food system

13. Over the last five years WRAP has built up a comprehensive evidence base which has raised awareness of the issue, developed a strong case of change, and given focus to the areas where consumers need the most help, where business and local authorities can benefit, and where the biggest impacts can be made. This evidence base includes a technical research and innovation programme where WRAP works with industry to

[93] Organisations whose primary role is the provision of hospitality or food service (eg restaurants, pubs, clubs, quick service restaurants).
[94] Waste arising in the supply of food and drink to households in the UK (WRAP—2010).
[95] Briefing memo—Food and drink waste arisings in the UK (WRAP—2010).
[96] Household Food and Drink Waste in the UK—(WRAP—2009).
[97] Avoidable food and drink waste is food and drink thrown away that was, at some point prior to disposal, edible in the vast majority of situations. Potentially avoidable food and drink waste is food and drink that some people eat and others do not (eg bread crusts), or that can be eaten when a food is prepared in one way but not in another (eg potato skins).
[98] The water and carbon footprint of household food and drink waste in the UK (WRAP and WWF—2011).
[99] The water and carbon footprint of household food and drink waste in the UK (WRAP and WWF—2011).
[100] Household Food and Drink Waste Linked to Food Purchases—Defra (2010).
[101] Household Food and Drink Waste Linked to Food Purchases—Defra (2010).
[102] Household Food and Drink Waste Linked to Food Purchases—Defra (2010).
[103] Household Food and Drink Waste in the UK—(WRAP—2009).

overcome technical obstacles to reducing food waste in the supply chain. WRAP's business plan and programmes to 2015 continue to acknowledge the importance of tackling food waste to improve resource efficiency, reduce greenhouse gas emissions, conserve freshwater and save businesses and consumers money.

14. Influencing decisions around food design, production, purchase and use is challenging, and WRAP has worked with a wide range of partners to develop a credible, integrated and consistent approach. Increasingly we are supporting people and organisations to develop their own action plans, providing them with a suite of tools and guidelines, making it easier for those consumers who want to change to make the most of what they buy.

15. *Retailers and brands* have spent over *£10 million* helping their customers reduce food waste. Examples include Sainsbury's "Love Your Leftovers" and Morrison's "Great Taste Less Waste" campaigns, the introduction of better labelling (eg Warburton's have removed "display until" dates from their products to reduce date labelling confusion), pack sizes that are better suited to today's households (eg Kingsmill's "Little Big Loaf") and promotions that give consumers more flexibility to use up the food they buy. These will help the sector to meet the targets agreed under voluntary agreements with WRAP for food waste reduction under the Courtauld Commitment[104] (*330,000 tonnes per year* by 2012) and the Federation House Commitment[105] (reducing operational water use by 20% by 2020).

16. More than *300 local authorities* in England are also running Love Food Hate Waste (LFHW)[106] initiatives that help local residents to reduce the amount of food that they waste, including road shows, cookery demonstrations and recipe competitions, working with community groups, housing associations and businesses. From 2010 WRAP has also been supporting the Greater London Authority to help them deliver their LFHW campaign across London.

17. *Community groups*, charities and broader civil society are also engaged. A partnership between Love Food Hate Waste and the Women's Institute (WI) successfully led to the development of approaches for community-level engagement that help consumers improve their confidence around food, and realise the benefits of wasting less. Trials led to significant savings for participants, and up to 50% less waste. More details of this initiative are provided in answer to Q3 below.

18. *Individuals* have also been motivated through engaging with the Love Food Hate Waste programme. They have started their own activities with friends and neighbours to tackle food leftovers and to design new recipes.

Progress to date

19. Since launching the LFHW campaign in November 2007, millions of people have engaged with the programme, throwing away less food and saving many hundreds of pounds for their household. Key outcomes are:

- Reduced food waste arisings by over *380,000 tonnes a year*, preventing over *£860 million worth of food a year* being wasted. The production of this food and the disposal of the waste would have produced more than *1.6 million tonnes* of carbon dioxide equivalent emissions *a year.*
- Cumulatively food waste savings amount to 670,000 tonnes, with a value of over £1.5 billion.
- More than *two million people* have made changes to the way they shop, prepare, store and use food.
- *Every pound spent by WRAP on LFHW has prevented around £150 of food being wasted*. Additional spending by partners has more than matched the WRAP spending.
- Local authorities will have saved at least *£22 million* in avoided waste facility gate fees and landfill charges.

Next steps

20. There are huge potential benefits to tackling household food waste. Good progress has been made but there is a need to maintain momentum, to raise awareness further and enable a greater number of households to benefit, in order to reduce further the millions of tonnes of good food being wasted. To give an indication of the scale of the issue, work undertaken under the first phase of the Courtauld Commitment decreased food waste arisings by 4.6% (out of a total of 8.3 million tonnes) between 2006 and 2009. Meeting the targets in the second phase will reduce food waste by a further 4% by the end of 2012.

21. WRAP and LFHW intend to facilitate delivery through existing and new partners across society, providing them with the necessary evidence and resources to do this in a cost-effective way. There is significant potential to exploit synergies between food waste prevention and health communication and solutions development, to achieve more consistent and cost-effective delivery, and to help the UK's households to move towards a more healthy and sustainable diet.

[104] For more information please see: http://www.wrap.org.uk/retail_supply_chain/voluntary_agreements/courtauld_commitment/index.html

[105] For more information please see: http://www.wrap.org.uk/retail_supply_chain/voluntary_agreements/federation_house.html

[106] For more information on the Love Food Hate Waste campaign please visit: www.lovefoodhatewaste.com

22. There are also continuing opportunities for food waste prevention and collection in the food manufacturing & retail sector, where the second phase of the Courtauld Commitment aims to achieve a 5% reduction in product and packaging waste in the supply chain by the end of 2012, whilst approaches to business and schools food waste collections are under development.[107]

23. There are new opportunities in the hospitality and food service sectors. These exist in both the "profit" and "cost" sectors:

- Profit—encompassing businesses whose primary role is to provide hospitality (restaurants, hotels, pubs, etc); and
- Cost—businesses and organisations for whom food service is a secondary role (public sector organisations such as schools, hospitals, prisons and the MoD, as well as private sector organisations).

24. We are currently working with Defra and the Devolved Administrations to consider how best to address packaging and food waste prevention and diversion from landfill for the hospitality sector. At the same time, we are working with Defra to ensure successful roll-out of the new government buying standards for food waste minimisation and collections.

25. As well as the sector-specific opportunities to prevent food waste, taken together there is a potential to exploit synergies that will lead to further household reductions. The use of voluntary agreements (responsibility deals) seems to be a cost-effective route to tackling these sectors.

Q3. *How can consumers best be helped to make more sustainable choices about food?*

26. WRAP research shows that consumers can be helped to make more sustainable choices about food in a number of ways. We have used Defra's "4Es" (encourage, enable, engage and exemplify) approach to pro-environmental behaviour change[108] as a framework for our response below.

Encouraging consumers

27. Consumers can be encouraged to make more sustainable choices about food by providing them with reasons why change is important. For example, WRAP's Love Food Hate Waste (LFHW) behaviour change programme works in partnership with retailers, local authorities and civil society to show consumers, alongside the environmental reasons why this is an important issue, that they could save themselves £50 a month by making the most of the food they buy. A good example of this approach is a joint programme run by Herefordshire and Worcestershire councils[109] for six months between late 2008 and mid-2009. As a result of this programme:

- Recognition of the LFHW brand increased amongst residents from 10% in the pre-campaign survey to 21% post-campaign, and awareness of the campaign similarly rose from 23% to 40%;
- the number of Committed Food Waste Reducers (a metric used to monitor the impact of food waste reduction initiatives) rose from 13% to 23% in five months; and
- an estimated 2,340 tonnes of food waste was diverted from landfill during the year following the campaign.

28. The last two bullet points are most relevant here, since they indicate that the programme did not just make local residents more *aware* of the issues surrounding food waste, but actually persuaded them to change their *attitudes* and *behaviour.*

Enabling consumers

29. Consumers can be helped by providing information that enables them to act (should they wish to). For example, by providing a reliable and efficient recycling service and communicating with residents in an easy and accessible format, letting them know how, when and why to recycle, Solihull council increased the range of material collected for recycling and ran a cost effective and successful communications programme to help people use the service.[110]

30. Part of the process of enabling consumers is making it easier for them to act. In the food area, this includes innovations by retail brands to extend the shelf life of food products. One example is Marks and Spencer's work to increase the shelf life and reduce the packaging associated with its beef joints and steaks. They were looking for an alternative to the plastic tray in which the beef joint was previously packaged, but needed to ensure that the preservation of the meat was not reduced. The solution was a "skin pack", a type of packaging that is wrapped tightly around the product. It keeps the meat fresh for up to four extra days, which

[107] Collecting Food Waste From Small Businesses and Schools. 2011. Eunomia Research & Consulting Ltd with contributions from WRAP.
http://www.wrap.org.uk/downloads/SME_Schools_Food_Waste__Final.32e99c46.10488.pdf

[108] The 4Es framework was originally published by HM Government in March 2005 in "Securing the Future", the UK Sustainable Development Strategy. Available at: www.defra.gov.uk/sustainable/government/publications/uk-strategy/documents/SecFut_complete.pdf . See p.26.

[109] www.wrap.org.uk/downloads/WRAP_herefordshire_worcestershire_LFHW_v31.539fd6c1.10530.pdf .

[110] www.wrap.org.uk/downloads/2011_Solihull_MBC_new_service_introduction_case_study.30b7fc4e.10481.pdf .

means it is less likely to go to waste. This approach also cuts down the weight of the packaging by up to 69%.[111]

Engaging with consumers

31. Consumers can be helped by engaging with them, to help them overcome their personal barriers to changing behaviour. This can be usefully pursued through civil society groups such as the Women's Institute. The Love Food Champions project is a good example of doing this. This was a pilot project that ran in ten areas around England in early 2008. Before the project started, participants were throwing away 4.7kg of food per week (just slightly less than the national average). After the project, they were wasting less than half this amount per household.[112] Elements of this approach have subsequently been rolled out across the country by a number of WRAP's Love Food Hate Waste partner organisations.

Exemplifying change to consumers

32. The fourth and final element of Defra's 4Es framework is exemplifying change, through leading by example and sharing what others are doing. With the Love Food Hate Waste programme we do this through areas such as the "add your voice" section of the website.[113] Locally, we encourage partner local authorities to showcase what they, and local retailers, are doing to make a difference. In the Recycle Now programme (another WRAP behaviour change programme, this time aiming to help householders to recycle more things more often), we encourage local authorities to tell their residents how well the area is doing. A good local example of this is the Recycle for Cumbria campaign.[114]

33. As consumers, we are influenced by the person that communicates with us. Trust is a key issue. A person that is perceived as the expert on the issue is more influential. Such communication then needs to be reinforced through social networks, establishing the desired behaviour as a social norm. Partners are an essential part of WRAP's approach to communicating effectively with and helping consumers. Our work on food waste with the Women's Institute is a good example. WRAP provides the evidence and experience to such partners, and they then communicate the message to their client groups.

Conclusions on Q3

34. WRAP's research and evidence base shows that consumers need to know the facts, so that they understand what the issue is, and why they should care about it. They need to know that others are taking part, and that they are part of something bigger. They need to have the infrastructure in place to be able to make the change for themselves in practice. Also, they need to be motivated: we need to thank people for their efforts and update them on how well they are doing.

35. Clear evidence of these points has been recorded in our national and local partnership work with Recycle Now and Love Food Hate Waste. We fully understand that remote messages from national or local government are often not the best way to motivate people to act. Working with local partners (who are trusted by local people) is important to reinforce messages and to encourage participation. However, they in turn value our expertise, which provides them with accurate information and evidence.

36. With the Love Food Hate Waste programme, WRAP has taken a two-pronged approach. First, we have provided the evidence and research to engage with retailers, food brands and consumers directly. Second, we have encouraged retailers and brands, along with other partners, such as councils and civil society groups, to engage with consumers themselves, in order to pass on knowledge and information, and so help consumers to make more sustainable choices about food.

Conclusions

37. WRAP believes that efforts to tackle food waste should be an important part of any strategy to make the UK's food more sustainable. We hope that the evidence above shows that the impacts of food waste are significant, and that action to reduce food waste can therefore make a significant contribution towards greater sustainability. WRAP is working in partnership with others to realise these benefits.

38. We hope that this evidence will be of use to the Committee, and would be happy to expand upon it further in oral evidence if that would be helpful.

[111] www.wrap.org.uk/retail_supply_chain/grocery/food/solutions_around_hou.html .

[112] www.wrap.org.uk/retail_supply_chain/research_tools/research/report_love_food.html .

[113] www.lovefoodhatewaste.com/add_your_voice .

[114] www.recycleforcumbria.org/rethink/create.asp : "Last year in Cumbria we recycled 36,718 tonnes of garden waste, 12,240 tonnes of paper, 7,240 tonnes of glass and 549 tonnes of cans. That's 56,747 tonnes of waste we collectively diverted from our landfill sites. A good effort no doubt but that's still only 17% so we've still got some way to go."

Annex 1

ABOUT WRAP

39. WRAP (the Waste & Resources Action Programme) is a-not-for profit UK company providing recycling and resource efficiency programmes for Defra, the Scottish Government, the Welsh Assembly Government and the Northern Ireland Executive. The organisation was formed in 2000 to implement a number of the actions set out in the Government White Paper *Waste Strategy 2000*.

40. WRAP's vision is a world without waste, where resources are used sustainably. We work with businesses, local authorities and individuals to help them reap the benefits of reducing waste, developing sustainable products and using resources in an efficient way.

41. There are two things that differentiate WRAP from others working on these issues. The first is our technical and market expertise, which we use to help inform and implement our funders' policies. The second is our practical ability to help individuals and businesses embrace change and become more resource efficient.

42. WRAP exists to address market failures. We only intervene where the free market is not delivering our funders' policy agendas on its own. Once the market failure has been addressed, we seek to exit, leaving the market to operate freely.

43. We add value through our skills, our expertise and our ability to work in partnership with other bodies, at both a national and a local level, to achieve real change. We deliver value for money through:

- minimising the cost to business of meeting Government requirements;
- leveraging private sector finance to address market failures;
- creating efficiencies and economies of scale; and
- accelerating the growth of key sectors of the low carbon economy.

30 March 2011

Written evidence submitted by Asda

ABOUT ASDA

Asda is one of Britain's leading retailers. We have over 180,000 dedicated Asda colleagues serving customers at 385 stores, as well as 25 depots and seven recycling centres. We serve over 18 million shoppers a week in store and our growing home shopping business reaches 98% of UK homes.

We are focussed on developing quality products which are healthy, sustainable and affordable. Our approach is to work in partnership with our customers and suppliers to make these improvements. To achieve this we have established a series of initiatives, set out below, which we believe have created step changes in the way we source and retail food sustainably.

How can the environmental and climate change impacts of the food we choose to eat best be reduced?

In order to reduce the environmental and climate change impacts of the food we eat, retailers can work with their suppliers in two main areas—responsible sourcing of materials, and carbon reduction throughout the supply chain. In 2010 at Asda we re-focussed our sustainability strategy to put greater emphasis on our work to improve the sustainability of our supply chain and the products it generates. This work has been in partnership with other Walmart companies, and suppliers, globally to make best use of our knowledge around the world. One such example is the launch of our Sustainable Agriculture initiative in October 2010 that heralded a new focus specifically on sustainable agriculture.

Sustainable Agriculture

This initiative has set three clear areas of activity:

1. Support farmers and their communities.
2. Produce more food with less waste and fewer resources.
3. Sustainably source key agricultural products.

We know that our customers really care about where their food comes from and rely on us to ensure that it meets all their expectations; not just on taste but also that it is environmentally sustainable. Not only will this initiative support our farmers but will also help deliver on our core purpose of making sustainable products "affordable for all", and not just for the small section of society that can afford to pay a premium. For example, our "Respectful Eggs" are our best-selling free range eggs; and we also sell low-carbon beef (see case studies below). Our specific goals and examples of previous work these build on are below:

Global Goals	*Asda's Specific Targets*	*Asda examples of work to date*
Goal 1: Support farmers and their communities	1.1 Increase products sourced from local suppliers by the end of 2015	— Increase sales of locally sourced products from current 6,000. — Offer of British Apples has more than doubled in the last three years
	1.2 Expand existing initiatives inc. Farm Links and education schemes by the end of 2015	— Established Asda Farm Link schemes (partnership groups with suppliers) for liquid milk, beef, lamb and pork. — Asda dairy bus visits 160 schools every year.
	1.3 Improve health and livelihood of women in agricultural communities by the end of 2015.	— Asda has contributed £50,000 to the building of a Day Care Centre in Ceres in South Africa to allow the children of women working in the apple industry to have access to care for their children.
Goal 2: Produce more food with less waste and fewer resources	2.1 Reduce fresh food waste and utilise unavoidable waste using sustainable methods by 10% farm to fork by the end of 2015	— Build on Courtauld 2 depot to retail target of 5% carbon reduction. — The additional 5% comes from focus on farm to depots operations. — Dutch Salad suppliers have reduced water usage by 95% by capturing water from the glasshouse roofs.
	2.2 Invest £99m in perishable supply chain by the end of 2015	— Continued drive to ensure our customers get the highest quality fresh food.
	2.3 Deliver program disseminating R&D for beef, pork, lamb, dairy, produce, poultry by the end of 2015	— Independent consultant employed to support Asda's dairy farmers to share best practice. — Asda Agriculture Development Centres created in two key agricultural colleges.
Goal 3: Sustainably source key agricultural products	3.1 Sustainable palm oil in Asda brand products (oil by end 2014; kernel by end 2015)	— All café oils are from sustainable palm oil. — Asda leading the Walmart Global Palm Oil Project.
	3.2 Develop sustainable beef programme with clear targets by the end of 2015	— We sell beef with 30% less carbon through changing breeding practices.
	3.3 Sell only sustainable fish (as assessed by the Sustainable Fish Partnership) by 2011	— Asda has been working to this target since 2005. — We have taken on the Sustainable Fish Partnership to independently verify achievements.

Case studies—Respectful Eggs and Low-carbon Beef

Asda has been selling low carbon eggs since 2006–07. We worked with our supplier, Noble Foods, to source these from free range farms which are powered using renewable energy (wind and solar). To help customers choose and to aid the assessment of demand for the product we sell the eggs in a distinctive package, branded as "Respectful". Using renewable energy and local food means that the eggs have half the carbon footprint in production as a standard free-range egg.

To the end of last year, Respectful had sold 31,565,640 eggs. This is equivalent to a carbon saving of 88 tonnes.

We also worked with our supplier ABP to develop low-carbon beef which has a third less emissions in production than standard beef. In contrast to Respectful Eggs, we do not brand this product—it simply forms part of our standard own-label supply.

Supply Chain Carbon Reduction

In addition to responsible sourcing, it is also important to reduce the carbon impact of food by working with our supply chain. In 2010 we set a goal with Walmart to eliminate 20 million metric tonnes of greenhouse gas (GHG) emissions from our global supply chain by the end of 2015. Because GHG emissions from our supply chain are many times larger than our direct footprint, the most economical GHG reductions are often not at the retail level, but rather in the value chain of consumer products. Such examples include raw material extraction, product manufacturing, transportation, customer use and product end-of-life.

Our buyers and energy experts are working with suppliers in more than 20 product categories to identify GHG reduction opportunities, launch new projects and implement changes. At Asda we're leading Walmart's global project in beef sourcing and production.

At Asda we recognise that packaging plays an important role in the environmental impact of food. We have done more than any other UK retailer to reduce our packaging, educate consumers on how they can recycle it

and work with government and the waste industry to enable better recycling of packaging. Whilst the rest of the retail sector recently went for a 10% reduction in food packaging weight, we achieved a 27% reduction. We also worked with WRAP and the BRC to create the on-pack recycling logo, now adopted across the sector, that informs customers on the packaging material type used and whether it can be recycled locally.

Packaging is often criticised, but we must remember that without it, enormous amounts of food would rot before reaching the mouths of our customers and their families. We do though agree that it must be optimised, ie reduced as much as possible whilst still carrying out its primary purpose—to protect the product.

We have reached a glass ceiling with weight reduction, where this approach is leading to adverse impacts on the product. For example, a block of cheese where a thin plastic film once cut by a customer leads to the ingress of air and so the deterioration of the product, whereas a re-sealable pack makes it far more likely all the product would be consumed. However, this re-sealable device adds weight to the packaging. To help identify the solution to this issue in 2009 we created an expert body comprising of Government, NGOs, academics, major brands and the packaging industry. We called this group a SVN—Sustainable Value Network—and they offered their time to help us configure a new system that will enable future further packaging optimisation. Our new packaging scorecard will be rolled out this year to both question the packaging used on our products by our suppliers and also to allow them to model different formats to ensure they select the more environmentally preferable option.

What are the land-use trade-offs that affect food production and supply and how should these be managed?

Conflicts over the use of land arise from the multiple functions required from it. These do not just the include fuel versus food debate (important though that is) but also demands for recreation, landscape and biodiversity. An example of one conflict would be polytunnels which are positive for food production as they extend domestic seasons to create healthy crops of soft fruit, and also provide increase demand for labour; but suffer from public and planning authority concern about their appearance.

One aspect that hasn't yet received adequate discussion by government and industry is a joined up approach to land use. Asda's view is that a discussion needs to take place as to whether we should blend all these issues across the nation or move to a mosaic of high biodiversity and high productivity. Already the concept of conservation corridors has been proposed to allow adaptation and species movement and we support this approach in principle. We believe that greater discussion is needed on these issues.

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

We agree in principle with the BRC response that "The Government could play a role in defining what a healthy, sustainable diet is. There has been discussion on this issue but the work on the topic which was begun by the Food Standards Agency (FSA) has now stopped. Defining what is a healthy, sustainable diet is extremely complicated when all the various factors are taken into account and balanced and we believe only the Government could take this forward."

The Government could help to develop healthy, sustainable and affordable food by providing a consistent messaging and advice framework. It could be argued that healthy eating and nutrition advice has failed in the past, demonstrated by the rising number of people suffering from degenerative diet related conditions. Therefore education is key and a consistent message is vital for customers' trust and to change behaviour. At Asda we play our part in communicating health messages and information about products to consumers. For example, in 2007 we launched a dual front-of-pack nutritional labelling system, combining colour-coded information with guideline daily amounts (GDAs) on our own-brand products.

Consumers should be encouraged to take a holistic view about the food they eat. For example, diets consisting of local foods can have a reduced environmental impact due to the lower transportation requirements of the products. However, as transport is usually a small part of a food's life cycle, it would be sensible for any messages around the environmental benefits of local food to also note that nutrition advice is to consume a varied, balanced diet regardless of location.

Similarly, media reporting often links reduced animal food intake to sustainable behaviour due to the carbon footprint of livestock agriculture. However, this may also have dietary implications since milk and related products provide the diet with essential amounts of calcium and some of the B complex vitamins. Meat provides a significant source of protein, iron and zinc. Again education would be key to help consumers choose alternative supplies of such nutrients.

We welcome and have been closely involved in programmes such as Change4Life and Love Food Hate Waste in which retailers and suppliers contribute to the communication of a simple, central message crafted by Government. Future opportunities could include the promotion of the Eatwell Plate and cooking skills. Additionally, more research is needed in terms of healthy and sustainable food, to build on work such as the Livewell Report devised by WWF which aimed to create a healthy, sustainable and affordable list of foods. Crucially, this report also took into account practicalities and acceptability for customers.

How can consumers best be helped to make more sustainable choices about food?

Asda is continually looking for ways in which we can help our customers make informed choices about the products and services we sell. Transparency is at the heart of our business and sustainability presents us with a great opportunity to engage with our customers on the heritage and source of our products.

Asda does not have plans to label our products with carbon or other sustainability information with the exception of a key limited set of certification logos, such as FSC, MSC, Fairtrade etc. The reason behind this decision is that we do not believe such a label will assist customers in making a sustainable choice at this current time and would more likely cause confusion.

Our approach to sustainable products does not require that a customer necessarily make an active choice at the point of purchase. Customers want us to help them do the right thing and we believe that choice editing the products on our shelves, to replace those less environmentally preferable with greener products, is the most effective and simplest way of doing this.

Clearly before even considering labels it is important to use a consistent metric to calculate the environmental impact of the product so that it is possible to genuinely claim that one product is "greener" than another. This area needs far more consideration which is why Asda is engaged with WRAP in the Product Research Forum, a cross-industry group reviewing common sustainability metrics.

Asda is very engaged in this area. We have carried out a lifecycle assessment across milk, lamb, potatoes, chicken and eggs and have plans to continue this work under a new Walmart project to eliminate 20 million tonnes of supply chain carbon by the end of 2015. For our fresh food supply chain analysis we did not use the Carbon Trust's PAS 2050 metrics as it was not in place by then, however the work that we did now forms part of the knowledge base in the Carbon Trust's Carbon Footprinting Tool.

Notwithstanding the above, due to our wide customer base there is undoubtedly a small number of customers to whom this information might be useful. In this instance we would envisage not on pack symbols but rather other mediums such as a website or smart phone application where the customer can scan a barcode and get the information they need.

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

We are already working in our supply chain to improve efficiency and to reduce our impact on the environment. However, with complex issues and thousands of suppliers, one of the biggest challenges we all face is measuring the sustainability of a product. Asda believes a research-driven approach involving universities, retailers, suppliers and non-government organisations (NGOs) can accelerate and broaden this effort.

We also believe that this approach needs to be on a global rather than a local scale. In this way we do not use PAS2050 (one measure of life cycle GHG emissions), but instead are an active partner in the Sustainability Consortium that is seeking to develop a global Sustainable Products Index. This consortium involves many academic institutions, Walmart, Marks & Spencer, Ahold and a wide range of global brand producers. Details of the Sustainable Products Index are as follows:

The Sustainable Products Index process

Index Step 1: Supplier Assessment

We will provide our suppliers with a survey of fifteen simple, but powerful, questions to evaluate their own company's sustainability. The questions are divided into four areas:

- — Energy and Climate.
- — Natural resources.
- — Material efficiency.
- — People and Community.

Under these categories are some familiar questions on greenhouse gas emissions and location of factories, but the list also includes some new areas, such as water use and solid waste produced. These are not complicated questions, but we have never systematically asked for this kind of information before. This is an important first step in assessing the sustainability of suppliers, but for true transparency, we also need a tool for the sustainability of products.

Index Step 2: Lifecycle Analysis Database

As a second step, Walmart is helping create a consortium of universities that will collaborate with suppliers, retailers, NGOs and government to develop a global database of information on the lifecycle of products—from raw materials to disposal. Walmart has provided the initial funding for the consortium, but it is not the intention to create or own this index. The company will also partner with one or more leading technology companies to create an open platform that will power the index.

Index Step 3: A Simple Tool for Consumers

The final step of the index is to provide customers with product information in a simple, convenient, easy to understand rating, so they can make choices and consume in a more sustainable way. How that information is delivered to consumers is still undetermined, but could take the form of a numeric score, colour code or some other type of label. The sustainability consortium will help determine the scoring process in the coming months.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

More localised-decision making is a challenge for the food industry, particularly food retailers. Unlike many other industries we have a large presence across the whole of the UK, but this is combined with highly efficient national practices and operations. We of course seek to meet the needs of our customer in each community, but we also aim to achieve lean and consistent non-customer facing operations. We believe our approach to local sourcing, in which small producers—often supplying only a few stores in one area of the UK—can still interact with a national retailer, offers a model for the food sector of how to adapt to local demands in a workable way. We anticipate that more localised decision making will contribute to the increasingly local identify of communities and therefore encourage further demand for products and services which are tailored to an area.

We already sell over 6,000 local products from 600 suppliers. We define local products as those that are made locally, grown locally and reared locally; are a local taste or delicacy and recognised by customers as local and for which there is significant customer demand.

Clearly there are particular challenges of local, often small producers interacting with a national retailer. To overcome these challenges over 10 years ago we developed the concept of the local sourcing hub. We now have nine of these local sourcing hubs around the UK which manage the relationships between local producers and our business. The hubs' primary focus is to support producers through the Asda accreditation process and then offer ongoing technical and development assistance as well as the facility to deliver to the one central hub in their area, reducing food miles and costs. We also allow producers to use our buying ability to secure cheaper supplies, such as packaging, and group with other producers to purchase raw ingredients in bulk.

We have a dedicated local sourcing and buying team whose aim is to identify local products and work with small suppliers to enable their products to reach stores. The team enlists the support of regional food groups, the Asda local hub network and customers and store colleagues to discover what the essential local brands are in each area.

Finally, we have introduced a range of measures to make it as inexpensive, simple and low-risk for small suppliers to do business with us. These include: no costly technology requirements; regular progress checks between Asda and the supplier; support on processes such as ordering and invoicing; and local supplier days which bring together producers to discuss issues.

We believe our unique hub model, alongside the other support we offer, brings sustainable benefits for the retailer and producer, and ultimately the consumer who gets access to a greater range of products. The hubs offer a sustainable approach to local sourcing. We have shared our model with Defra and other outside groups so that the wider food sector can benefit from our knowledge of working in a more localised environment.

31 March 2011

Written evidence submitted by the National Rural and Agricultural Workers Sector of Unite the Union

INTRODUCTION

We believe sustainable food is that "which is healthier for people and the planet." While there are many more complex definitions, this highlights that everybody in the food chain needs to be healthier in order to help the survival of the planet.

We take the long view like the *World Health Organisation (p272)*[i] that:
"The strategies needed to create desired changes in nutritional and environmental patterns are often complementary and, as a whole, provide cost-effective, sustainable development for agricultural land… In addition, local strategies that seek to improve the availability of, access to and consumption of locally produced foods, particularly fruits and vegetables, also increase the interdependence and thus the social cohesion between urban and rural dwellers."

This inquiry is a timely reminder of the Curry Commission set up 10 years ago to address sustainable food and farming, that became known as the *"Curry Report"*[ii]—properly "The Strategy for Sustainable Farming and Food: Facing the Future."

The EAC inquiry should ask:
"How well have Curry's recommendations be implemented and what is the overall success of Curry's Commission?"

We take one particular aspect of the Curry Report that noted (p32) that agriculture has "the worst fatal injury rate of any broad employment sector—on average, one fatal accident a week." It is twice as dangerous (in terms of being killed at work) to work on a farm than the next worst industrial sector—construction. Curry said: "This represents an avoidable human tragedy. In addition, over 100,000 working days are lost a year as a result of accidents in the agricultural sector, costing the British economy around £130 million."

Has this improved in the last 10 years? Answer—apart from one year—2008, No. The rate of fatalities is remarkably similar and awful. This highlights one of the "social consequences of the way the food we eat in the UK is produced." Funding for the HSE's "Make the Promise" campaign that addresses this appalling state of affairs, has recently been cut. It would seem to us that farmers and farmworkers are paying a high price to produce cheap food.

This is one of many social consequences. Whenever the word "sustainable" is used, it introduces the social aspects of environmental concerns. They have to go together. Yet "social" is missing among EAC's 5 themes. So we suggest adding No 7 and call it "Social Well Being." This conforms to FAO *E-forum to define Sustainable Food and Farming*[iii] and their proposed sustainability "issues", which includes one called "Social Well Being" and was discussed on their e-forum during the week March 14–18.

Social Well Being

Social Well Being would include wages and conditions in general, which have traditionally been below other industrial workers. There are few organised workplaces, primarily because of the adverse balance of power where many workplaces have only a few workers often working alone. This has long been recognised by all governments, such that when all other Wages Boards were abolished in the late 1980's the Agricultural Wages Board survived. But now, due primarily big plantation owners in the East complaining about paying employees a penny or two above the minimum wage, this has been abolished by the present government. What will replace it? 80% of farm workers depend on the skills/reward structure in the AWB to make any progress in their lives.

Poor working conditions among temporary workers was eventually recognised with the formation of the Gangmasters' Licensing Authority, which since its introduction has made a good start. It has done a good job at enforcing regulations regarding health and safety and accommodation, among the top tier, but finds it more difficult to deal with the lower layers of contracting out labour. However the long term issue to address is the dependency on temporary labour in the sector. While there are natural reasons for temporary working, the dependence on 300,000 migrant workers, instead of local temporary workers, cannot last forever. It is not sustainable.

Many retailers have signed up for the Ethical Trade Initiative, which uses the ILO Conventions to lay down a series of standards—from allowing trade unions to organise, to extensive H&S conditions. This is voluntary at present but could be transformed into something more akin to the Fairtrade label. The Little Red Tractor scheme (NFU inspired Assurance scheme) does not—and does not want to, include labour conditions. But some brand needs to be introduced that does enable customers to "buy decent UK working conditions." If most consumers knew about the appalling fatality rates, poor wages and working conditions in the UK, they may well respond in the same way as many have to "Fairtrade." Fairtrade relates with primary producers, while an ETI brand would address employees throughout the farm-food chain.

Summary

The issue of cheapness must be addressed by the EAC Committee if it is to say anything meaningful about sustainable food. Blue Sky thinking can be "Pie in the sky" that will do nothing unless somebody does some Greenfield Digging—and that means more investment in the land sector.

There has been a rundown in our land sciences, this must be reversed. Out of 20 research stations 20 years ago, barely a handful now still exist. One of them *Wellesbourne* Research Station (latterly know as Warwick HRI)[iv] was one of the first things to go (October) in the Coalition government.

There is a parallel rundown of land skills, that will be made worse by the demise of the AWB, where many of the practitioners are now near or beyond retirement age. Clearly this is not sustainable. Too much land under-worked because it is "unprofitable." Dairies are going out of business to be replaced by plots for horses. Land in the East of UK is generally intensively used, while that in the West under used.

Ways will have to be found to make it more rewarding to work on the land. A few technological fixes—to create plants that need less fertilisers, will not replace the rundown of skills needed to farm all sorts of land conditions in new and innovative ways. New electronic technologies could help make a life on the land more attractive to the next generation. If the word "sustainable" is to mean anything, we have to create a more sustainable land workforce, and that means paying and treating workers to 21st century conditions.

This is what the Commission should address urgently.

References

[i] http://www.who.int/nutrition/publications/Food_and_health_Europe%20_newbasis_for_%20action.pdf

[ii] http://www.defra.gov.uk/foodfarm/policy/sustainfarmfood/documents/sffs.pdf

[iii] http://www.fao.org/rio20/e-forum/en/

[iv] http://www.sustainablefood.com/wellesbourne.html

31 March 2011

Written evidence submitted by Which?

Summary

— Government leadership is needed so that there is greater clarity around what type of food production and consumption is needed in order to tackle the many challenges and trade-offs facing the food system.

— A clearer and more specific and co-ordinated food policy is needed that is informed by a broad-based public debate that understands and takes account of consumer attitudes towards different food production systems and approaches.

— More needs to be done to promote sustainable choices in public institutions, including extending the scope of the Government's Food Buying Standards.

— Which? research indicates that most people have little understanding of issues around sustainability when buying food, but a significant proportion would be open to paying more attention to the environmental impact of foods if labelling was easier.

— A more co-ordinated approach is needed to reach agreement on the key impacts and context that need to be communicated to consumers based on current evidence.

— Lessons can be learned from the experience of helping consumers make healthier choices. A multi-faceted approach is needed that addresses issues around access, availability, product development and promotion alongside a consistent approach to consumer information and labelling.

Introduction

1. Which? welcomes this opportunity to submit evidence to the Environmental Audit Committee's Inquiry into Sustainable Food which is very timely given the many challenges facing the global food system, including the need to produce more food with less of an impact, volatile food prices and the continuing problems of obesity and diet-related disease as recognised by the recent Foresight report on Global Food and Farming Futures.

2. Our evidence focuses largely on how consumers can best be helped to make more sustainable food choices, as this has been our main focus to date.

General Comments

3. Successive inquiries and expert reports have set out the challenges that face us in terms of ensuring a sustainable food supply. However, there is still a lack of clarity over what that means in practice both in terms of what sort of food we should be producing and how consumers can make more sustainable choices.

4. While the evidence-base is evolving, we are concerned that there is a lack of a clear strategy and guidance on the way forward. Under the previous government, a "2030 food strategy" was published, focused around six main themes: ensuring a competitive, resilient and profitable food system; increasing food production sustainably; increasing the impact of skills; enabling and encouraging people to eat a healthy, sustainable diet; reducing the food systems greenhouse gas emissions; and reducing, reusing and reprocessing waste. The Government has stated that it broadly agrees with these issues and so it is important that further details of how these objectives can be delivered are developed with stakeholders. There is still a need for a clear, co-ordinated food policy. This will help to ensure a greater understanding of what is considered best practice, where the gaps in understanding that need to be resolved lie and how the many trade-offs between different aspects of sustainability can be handled in practice.

5. We see a crucial part of this as a broad-based public debate around food. Producing more food with a lower impact will require decisions to be made about what type of food production is acceptable and what this means for other considerations from ethics and animal welfare to our landscape. We therefore consider that the public need to be consulted on the way ahead, particularly when the Foresight report indicated that "*food production and the food system must assume a much higher priority in political agendas across the world. To address the unprecedented challenges that lie ahead the food system needs to change more radically in the coming decades than ever before, including during the industrial and green revolutions*".

6. Government leadership should also mean leading by example and there is an opportunity for the Government to promote more sustainable food choices within the public bodies and institutions that it has responsibility for. We have supported the development of mandatory Government Food Buying Standards, but are concerned that based on the Government's consultation these are too limited in scope (the NHS is not included for example) and also in terms of the criteria that are used to underpin them.[115]

How can consumers be helped to make more sustainable choices?

7. The consumer research that Which? has conducted indicates that few people are aware of the types of debates that are taking place around the future of the food system or understand the actions needed in order to reduce the impact of what they eat. It does, however, suggest that many people would be more motivated to make more sustainable, lower impact food choices if it was made easy for them. In a survey conducted in June, seven in ten people interviewed would pay more attention to the environmental impact of the foods they buy if labels were clearer.[116]

8. Making sustainable choices easier requires a combination of actions by retailers to ensure the sustainability of the food on offer to consumers—as we are seeing with fish products for example where many retailers have policies in place around sustainable sourcing, taking this decision out of consumers' hands—and provision of simple, clear easy to understand information. Providing consumers with clearer information about how to make more sustainable choices should in turn help to drive food industry practices.

9. We conducted three phases of consumer research last year in order to better understand people's attitudes towards food sustainability, with a particular focus on environmental and ethical labelling schemes.[117]

- A face-to-face survey to understand how people recognise and view the importance of environmental and ethical labelling, compared with other factors affecting their food choices (1,043 people representative of the UK population, aged 16 and above were interviewed in June 2010)
- A qualitative hall test to gauge the level of interest and understanding of a broad spectrum of people from different backgrounds (30 depth interviews, March 2010, Watford)
- A series of focus groups held in St Albans and Wellingborough in March 2010 involving people who said they sometimes make more environmentally-friendly or ethical choices involving people from different life stages and backgrounds:
  - Group 1: pre-family, 18–25 years old
  - Group 2: younger family, 26–40 years old
  - Group 3: older family, 41–60 years old
  - Group 4: empty nester, 65+ years old.

10. The research found overall that there was a lot of confusion and even more motivated consumers struggled when it came to understanding the broader environmental impacts of their food choices. Sustainability issues were not a priority for most people compared with issues such as taste, safety and price. When asked to rate the importance of different factors when shopping for food, healthy eating and protecting the environment were seen as "very important" by 50 and 29% of people, respectively. This compares with 76% seeing taste/quality as very important, 93% for food safety and 92% for price. Greater importance was also attached to healthier eating and the environmental impact of food choices in the South of England, compared with Scotland and the North of England.

11. When shown labels on foods that were linked to environmental or ethical issues, there was very little awareness. Some people had never noticed the labels even though they regularly bought the products, as reflected by this typical comment: *"I'm actually very familiar with all of these labels, but I've never noticed them on a lot of these products which I do buy. Now that you've asked me to look, they're pretty obvious!"* (Female, younger family, hall test)

12. The research did, however, indicate that people would be more open to making sustainable food choices if it was easy and straightforward to do so: *"I'm actually quite open to this. The Government just needs to promote it. I've bought that bread millions of times, but the footprint is just lost in a sea of information. I think that once you know about it you'd actually look for it though."* (Male, younger family, hall test)

13. The survey also reinforced a general lack of awareness of some of the labelling schemes, with Fairtrade standing out as the exception with 82% saying that they had heard of it compared to 33% for Rainforest Alliance, 21% for the Carbon Trust Carbon Footprint label, 20% for Freedom Food and Red Tractor Farm Assured, 6% for the Marine Stewardship Council, 4% for Conservation Grade and 3% for the LEAF marque.

14. When presented with the examples of the labelling schemes in the focus groups, there was also a lack of understanding of what they actually meant. Again, Fairtrade stood out and people felt that it was clear what it indicated. There was confusion about what some of the others meant and, in the case of the Carbon Trust Carbon Footprint label, a desire for more context so that the significance of the level shown was clearer.

[115] http://www.which.co.uk/documents/pdf/government-food-buying-standards—which—consultation-response-244776.pdf

[116] 1043 people representative of the UK population were interviewed face to face between 18 and 22 June 2010 from which 854 adults who shop regularly for food were selected.

[117] http://www.which.co.uk/documents/pdf/making-sustainable-food-choices-easier-231317.pdf

15. Which? has made a series of recommendations as to how labelling schemes can better help consumers make more sustainable choices based on this research:

- *Schemes need to be streamlined*: different schemes cover different issues and so there is scope to bring together different elements, at least for environmental impacts, but possibly for other elements of sustainability too
- *Schemes need to be more user-friendly*: there needs to be a context provided for people to make sense of the information in a similar way to how nutrition labelling has evolved from presentation of facts to interpretation of those facts relative to your needs.
- *Schemes need to be more prominent*: Fairtrade stood out partly because of the way that it was designed, but others were lost in among other information on the label.
- *Schemes need to communicate in a positive way*—many people seemed likely to be more open to using information if they felt good about what they were doing as a result
- *Independence is a key aspect of any scheme*—people need to have confidence in the information provided and easily be able to compare across different brands. 74% of people interviewed in our survey wanted environmental labelling schemes on foods to be run by bodies that are independent from food retailers and manufacturers.
- *Schemes need to be consistent and widely used*—people expect consistent communication from government and industry.
- *Schemes need to be effectively promoted*—labelling schemes need to be part of broader communications about making more sustainable choices.

16. Overall, however, the development of clearer labelling and information about making more sustainable choices needs to be informed and supported by greater clarity around how consumers can make more sustainable choices. There needs to be a common understanding across government, industry and other relevant stakeholders around the priority issues for communication to help inform food choices. The Government did have an "integrated advice" project which was intended to bring together information about how to make healthy and low impact choices. Unfortunately this will no longer be going ahead.

17. Which? has been working with some of the main retailers, manufacturers, non-governmental organisations and academics with an interest in this area, as well as Defra, to try and develop some principles that should guide the provision of information to consumers, with the aim of ultimately developing a more consistent approach to labelling. We initiated this following our consumer research and also in recognition of the need to avoid some of the mistakes with nutrition labelling. This became a very competitive issue that resulted in a proliferation of different labelling schemes, some of which are not based on the evidence of what works best for consumers. There also seems to be a willingness to try and work through the complexities collectively as many organisations and companies are struggling with the challenge of how to inform consumers' choices in a more meaningful way.

18. We will be continuing these discussions, but it is clear that this is a very difficult issue and there are a range of perspectives around the priority information to communicate (for example, whether specific impacts such as carbon and water can be singled out), whether some of these issues can be combined taking account of both practice-based criteria and outcome-based criteria[118] or whether there needs to be much broader information about sustainability in general. Our survey showed mixed views about the desire for an integrated label of some kind combining different elements of sustainability. Different elements are likely to be more significant for different products compared to others, as well as for different consumers. Research commissioned by Defra also suggests that developing an integrated label would be very difficult practically.

19. Part of the problem is that the evidence base is limited, particularly when it comes to enabling consumers to make choices between individual foods or even food types. However, there are also different views about the priorities and approach needed—including where the balance should lie between informed consumer choice and choice editing by retailers and manufacturers. This is therefore an area where we consider that there is a need for greater government leadership, initially to give broader-based advice around what is a healthy, sustainable diet which can then be translated into more specific information on food labels to enable choices between different products.

20. Agreement needs to be reached on the key issues that can be measured and are a meaningful indicator of the environmental impact of a food to consumers based on current evidence. This can then be supplemented by additional information about broader sustainability issues. Crucially, information has to be put into context so that consumers can easily make comparisons between products. All too often, the need to provide consumers with meaningful information conflicts with the need for retailers and manufacturers to distinguish themselves and gain a competitive advantage based on labelling. As consumers become more aware and engaged with these issues, it is important that they can have confidence in the information that is provided and that a consistent and meaningful approach to labelling is used across the board from the start. Which? will be working with the food industry and others to try and ensure this but the Government—and ultimately the European Union—also have an important role to play.

[118] Defra Research Project on Effective Approaches to Environmental Labelling of Food Products, University of Hertfordshire, February 2011.

21. Other lessons also need to be learned from on-going efforts to tackle the barriers to eating healthily. This has demonstrated how concerted and multi-faceted action is needed at all levels in order to improve access, availability and affordability of a choice of healthier products as well as tackling information and labelling and the broader environment in which we make those choices.

22. It is also important to help consumers make more sustainable choices in terms of food waste. UK consumers throw away a huge amount of food. The Waste and Resources Action Programme (WRAP) estimates that households in the UK throw away 8.3 tonnes, per year, most of which could have been eaten. WRAP estimate that this avoidable food waste has a value of at least £12 billion, adding around £600 to the average annual family grocery bill. This is a significant economic cost for UK households. WRAP and WWF have recently published a report showing the huge scale of the water and carbon footprint too, on top of the economic cost, with avoidable food waste representing 3% of UK greenhouse gas emissions plus 243 litres per person per day, which is approximately one and a half times the daily average household water use in the UK.

23. As part of this, further consideration should be given to the extent to which supermarket sales offers contribute to this food waste problem, and therefore to households wasting money, and whether they are in consumers' interests. In 2008 Which? magazine found that three in 10 Which? members said that "buy one get one free" (BOGOF) offers, for example, caused them to throw food away. Which? advises consumers to consider whether they can use the fresh food before taking advantage of such offers, to use the practical tips from WRAP's Love Food Hate Waste campaign (*www.lovefoodhatewaste.com*), to check best before and use-by dates and to freeze fresh food if they are unable to use it before it goes out of date.

Conclusion

24. We are concerned that while there has been a lot of discussion around the need to ensure sustainable food production and consumption and the evidence of the urgent need to act has been strengthened, there is still a lack of clear Government policy. It is important that there is agreement on the priority actions needed, what best practice looks like and a much clearer vision about what we should be producing and consuming in order to be more sustainable.

25. While actions are needed on many fronts, the Government has an important role to play in providing the direction and resolving some of the complex trade-offs between different aspects of sustainability. It also has to demonstrate that it can ensure that food production develops in line with consumer expectations. A meaningful public debate is therefore needed in order to shape a future food policy.

26. Our research has shown that while consumers are currently not very engaged with these issues, many people would be more open to choosing lower impact foods if it was simple and easy for them to do so. While there is a lot that can be done to ensure the sustainability of foods that are offered by retailers, manufacturers and caterers, it is also important that stakeholders across the supply chain work to develop a consistent, simple and meaningful approach to consumer information and labelling to enable more sustainable food choices.

31 March 2011

Written evidence submitted by Compassion in World Farming

Summary

Compassion in World Farming welcomes this inquiry by the Environmental Audit Committee. We believe that, given the global and inter-connected nature of agriculture, policy actions by the UK need to be considered in the global context. This also provides an opportunity for the UK government to take a lead in calling for concerted global action on agricultural and dietary change.

The industrial model of animal agriculture is presenting serious conundrums which need to be urgently addressed. Clearly, the world's agriculture is not meeting the world's needs. The scale of industrial animal production and consumption is taking a heavy toll on the climate and the wider environment, as well as on biodiversity, animal welfare, scarce global resources of water and grains, and on food security and human health.

Compassion in World Farming believes that one of the quickest and easiest solutions for these conundrums is a reduction in meat and dairy production and consumption by high-consuming populations.

But powerful commercial interests make it difficult for policy makers to endorse this logical solution. However, a number of authorities in a range of countries are endorsing it with schemes such as meat-free days or advice to cut down, including advice from the UK's Department of Health to reduce red meat consumption.

Compassion believes that the urgency of taking action outweighs this challenge. As stated in our response to the investigation by the UK Committee on Climate Change on "Land Use Change and GHG implications of Consumption Change", we would be happy to support any government policy to reduce consumption of animal products, providing of course that such policies posed no threat to the health or welfare of farm animals and hopefully could provide real benefits in these areas.

Question 1. *How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?*

1. Regarding climate change and the environment, current knowledge tells us that livestock production is responsible for nearly a fifth of greenhouse gas emissions (Steinfeld et al, 2006).

2. Industrial animal farming's wider environmental and water "footprint" is unsustainable. The industrial model is highly demanding in its use of land, energy and water, largely due to the need to intensively produce crops to feed the animals.

3. Around 40% of the world's cereal harvest—70% in most rich countries—is used as livestock feed. (Lundqvist, 2008). Over 90% of soya beans and 60% of maize (corn) and barley are grown for animal feed (Steinfeld *et al*, 2006).

4. To produce 1kg of edible meat in the U.S. by industrial methods requires 20kg of feed for beef, 7.3kg of feed for pig meat and 4.5 kg of feed for chicken meat (Smil, 2000). (These figures appear higher than the usual feed conversion calculations quoted, because the latter tend to include parts of the animal that are normally not eaten, such as bone and hide).

5. Proposed technical fixes to reduce GHG emissions from farm animals are not the whole answer. The well-publicised emissions of methane from ruminants are one of the first apparent targets for reduction. If cattle are given grain rather than grass, they emit less methane. However, a diet high in concentrates can also mean an increase in laminitis, leading to painful lameness. High-yielding dairy cows are already prone to lameness because of selective breeding for high milk yield. Therefore changes to animals' diets or their genome could well have adverse welfare and health implications. This also applies to proposals to keep them permanently indoors in order to scrub their methane emissions. Such proposals or practices are unacceptable on animal health and welfare grounds.

6. Regarding land-use change, according to The Ecologist; "vast plantations of soy, principally grown for use in intensively-farmed animal feed, are responsible for a catalogue of social and ecological problems, including the forced eviction of rural communities, landlessness, poverty, excessive use of pesticides, deforestation and rising food insecurity" (The Ecologist, 2009). One should add to this the devastating effects on wildlife.

7. The use of land for farming clearly needs to respect the environment and biodiversity. Agro-ecology, including woodland can yield multiple benefits. Importantly it would provide a suitable outdoor ranging environment for livestock, and could be combined with growing fruit and nut trees, the products of which would support positive dietary change. Well-managed permanent pasture can act as a valuable carbon sink and research continues into its full potential.

8. The new APPG on Agro-ecology is a good forum for raising awareness and MPs should be encouraged to attend.

9. Compassion believes that the greatest advances in delivering sustainable food can be made through a reduction in farm animal production and consumption. Research undertaken by researchers at The Institute of Social Ecology in Austria, and at the Potsdam Institute for Climate Impact in Germany, found that it would be possible to feed the world in 2050 without using intensive animal or crop production and without further deforestation or much expansion of agricultural land. However, options for providing sufficient fuel and food are greatly increased if developed countries adopt diets lower in animal products. The research report "Eating the Planet: Feeding and fuelling the world sustainably, fairly and humanely" was commissioned by Compassion and Friends of the Earth (Compassion in World Farming and Friends of the Earth UK, 2009).

10. Debate about sustainable agriculture must include at its centre consideration of farm animal welfare. Farm animals are sentient beings who have the capacity for suffering and for well-being. European Union Member States are obliged by law to pay full regard to "full regard to the welfare requirements of animals" (Lisbon Treaty, 2008).

11. For animal agriculture to be sustainable, it must also be sustainable for the animals themselves.

12. In the drive for cheap animal protein, animals have been subjected to selective breeding for high yield of meat, milk and eggs. But the unintended consequence of such breeding is widespread animal suffering. Pressure from the biotechnology industry for animal cloning and genetic engineering now threatens to exacerbate that suffering. The European Food Safety Authority (EFSA) has concluded that "the health and welfare of a significant proportion of clones… have been found to be adversely affected, often severely and with a fatal outcome" (EFSA 2009). We urge Defra to re-consider its refusal to oppose cloning.

13. Billions of animals have to endure the barren confinement of the factory farming system, in which they have little or no opportunity to carry out important natural behaviours. In the case of sow stalls or the narrow veal crate, they cannot even turn around. (Both of these systems are illegal in the UK).

14. The profoundly unnatural environment of the factory farm gives rise to harmful animal behaviours. Painful mutilations to try and prevent these are routinely carried out without analgesia or pain relief. Procedures

include tail-docking of young piglets (routinely carried out across the EU, despite the fact that routine tail docking is illegal) and beak-trimming of laying hens.

15. Measures such as better-quality feed for under-nourished animals in developing countries, would increase their productivity and reduce emissions in ruminants (very fibrous plants, such as those on which ruminants in developing countries may have to subsist, may result in higher methane emissions). But the use of very high-yielding, non-indigenous breeds should be avoided.

16. Positive solutions to our environmental problems are available but require joined-up thinking between national and intergovernmental organisations, and a change in incentives for commercial interests. A useful model to follow may be "contraction and convergence" as proposed by public health experts (McMichael et al, 2007), where "those on western diets cut back their consumption of meat and dairy, whilst allowing people in the poor developing areas … to increase their consumption, with both converging at a level which is sustainable for human health and the planet's resources and the environment." (D'Silva, 2008).

Question 2. *How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?*
and
Question 3. *How can consumers best be helped to make more sustainable choices about food?*

17. Jonathon Porritt, renowned environmental expert, suggests that government set up a "90g Advisory Council" to identify how we can reduce individual meat consumption from 300g to 90g per day. He suggests governments move to set "personal meat quotas" (PMQs), along the lines of personal carbon quotas. Although he acknowledges the reaction such a suggestion may provoke, if the need for it is backed by robust science, then that provides a good defence. PMQs would also be equitable and reduce quotas down to 90g (total of red and white meat) over a 10-year period, allowing plenty of time for people to adapt (Porritt, 2010).

18. Solutions may include "public health awareness programmes, government sponsorship of healthy food programmes and selective taxes on unhealthy foods" (D'Silva, 2011).

19. There is an urgent need for Government policy to promote a balanced, mainly plant-based diet, as recommended by the World Cancer Research Fund (WCRF/AICR, 2007). Information such as that provided by the Department of Health in its article "Red meat and bowel cancer risk" (Department of Health, u.d) is a good start.

20. However, we suggest additional information could usefully be added regarding the fat content of industrially-produced chicken meat. The "Portion sizes and cutting down" section suggests replacement of red meat with chicken in some instances, but does not specify the type of chicken. There is evidence that free range chickens are significantly less fatty than chickens reared indoors:

- An intensively reared chicken today contains proportionally 2.7 times as much fat as in 1970 (8.6g per 100g in 1970 compared with 22.8g today) (Wang *et al*, 2004).
- Today's intensively reared chicken contains around 30% less protein than in 1970 (24.3g per 100g in 1970 compared with 16.5g today).
- Intensively reared chicken now contains nearly 40% more fat than protein. In contrast, organic chickens contain more protein than fat and have 25% less fat than intensively reared chickens (17.1g per 100g for organic compared with 22.8g for intensive).
- Free range and organic systems also have a far higher welfare potential than "standard" indoor rearing.

21. Additionally, "milk and meat from grass-fed animals has higher levels of benefical conjugated linoleic acid and of many other antioxidants and micronutrients" (Young, 2010).

22. The relatively low price of animal products from industrial farming conceals the real costs of production. At the policy level for helping consumers make more sustainable choices, governments should end subsidies for intensive agriculture and instead promote low-impact farming. The CAP should be reformed to properly incentivise practice which is good for the environment and animals.

23. Perhaps governments should turn the tables and lobby food businesses to urgently bring in sustainable practices. To quote Jonathon Porritt again: "Alternatives to meat could be marketed much more aggressively, and there's considerable scope for further innovation here. For an industry that brings out more than 19,000 new products *every year*, the opportunities for a whole new family of "I can't believe it's not meat!" products must be enormous!" (Porritt, 2010).

24. Regarding the sustainability of the global food supply, much of the land, energy and water used for growing feed for factory-farmed animals could be more efficiently used to grow food that is directly consumed by people. The Intergovernmental Panel on Climate Change (IPCC) noted in 2001 that "A shift from meat towards plant production for human food purposes, where feasible, could increase energy efficiency and decrease GHG emissions" (IPCC, 2001).

25. Reqarding equity of the global food supply, Tara Garnett notes that "distribution and access are socio-economic, not just biological, challenges" (Garnett, 2010).

26. Regarding sustainability for farm animals: due to selective breeding for high yield, Defra-commissioned research found that over 25% of "standard" commercial broiler chickens suffer from painful lameness (Knowles et al, 2008). The UK alone produces over 800 million broiler chickens a year. Research has shown that, given the choice, lame broiler chickens choose a feed which contains painkiller, indicating that they are aware of their pain (Danbury *et al*, 2000). Selective breeding has caused such ill-health in fast-growing strains that the chicks would struggle to survive to puberty without severe feed restriction, which in turn, causes distressing hunger for the breeding birds.

27. High-yielding Holstein-type cows now usually have to be culled at around five years of age due to lameness, mastitis or infertility related to their high productivity. Indeed, selective breeding for milk production has so skewed their metabolism that high yielding cows are "milked beyond endurance" (Compassion, 2009). EFSA say that: "*Cows are in negative energy balance during early lactation, when functional body tissues may be metabolised to excess, causing poor welfare. This risk is particularly severe in high-producing genetic strains."*

28. Male calves of high-yielding dairy cows are not considered economically viable to raise for beef, and may be shot at birth or exported to be raised in systems inferior to those in the UK. It may be helpful to connect the footprint of dairy farming with that of the beef industry. This may provide incentives for breeding "dual purpose" animals. The males are considered suitable for beef and females can join the milking herd, but have lower milk productivity, which is better for their health, and so they are more robust than high yielding Holstein-type cows.

29. Intensively farmed animals are typically stressed—for example by overcrowding and lack of opportunity for natural behaviour—and therefore are more susceptible to infections. Modern livestock intensively selected for high yield are more likely to suffer from ill-health than more robust traditional breeds (Rauw *et al*, 1998). Antimicrobials are widely used in industrial farms, and the inappropriate use of these invaluable medicines to prop up this unsustainable system is now believed to have played a major role in the growing global problem of antimicrobial resistance.

30. To help raise consumer awareness, Compassion believes that there needs to be clear labelling to show method of production—factory farmed, free range, or organic—following the model of egg labelling in the EU, where eggs are labelled by method of production.

31. In a number of countries, national governments or health agencies or cities have felt able to take action regarding reduced meat consumption. In 2009, the Belgian city of Ghent declared that it would be promoting meat-free days every Thursday, under the banner "Donderdag: Veggie Dag" to combat obesity, global warming and animal cruelty. The Swedish National Food Administration (NFA) and the country's Environmental Protection Agency have also set out draft guidelines asking people to reduce their carbon footprint by eating less meat (NFA 2009). Also in 2009, it was reported that Germany's federal environment agency called for meat reduction (Guardian, 2009). The Chief Executive of the French National Institute for Agricultural Research (INRA), Marion Guillou, has said: "We need to ensure food availability of 3,000 kilocalories a day per person, of which only 500 kilocalories is from animal products" (*Nature*, 2010). Last year, the city of Cape Town announced its support for a meat-free day per week (City of Cape Town, 2010).

32. Public health expert Professor Tony McMichael advises: "Promoting actions at personal, city-wide or national levels can help to promote awareness of the issue at global level—and, eventually, effective response to it at that level" (McMichael, 2010).

Question 4. *Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?*

31. As outlined in our response to question 1, industrial animal farming has a huge environmental footprint.

32. Regarding the sustainability of the global food supply, industrial animal farming is highly polluting and intensively produced meat is one of the most resource-inefficient methods of producing food for people (paras 1–7 and 24). Selective breeding for high yield and factory farming are unsustainable for farm animals (paras 10–14 and 26–29).

33. Globally, one billion people suffer from hunger or malnutrition. 35% of the deaths of children and 11% of the world's burden of disease are caused by under-nutrition (*Nature*, 2008). But around a further billion people are overweight or obese. In the UK alone, obesity has a financial cost to the health service of £4.2 billion (Department of Health, u.d) and an unquantified cost in human welfare. High levels of saturated fat in the diet can raise cholesterol levels and increase the risk of heart disease. Because of links between red meat and bowel cancer, people are advised to limit their intake to 90g per day. Other experts advise an upper limit of meat consumption in total per day of 90g, of which no more than 50g should be red meat (McMichael, 2010). Because of links with some types of cancer, the World Cancer Research Fund advises people to avoid processed meat (WCRF/AICR, 2007).

Question 5. *How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?*

Question 6. *How could Government procurement practices be improved to promote better practice across the food sector?*

34. The "Good Food for our Money" campaign run by Sustain, argues that "both EU law and UK government policy strongly support sustainable food procurement [including good animal welfare] in the public sector." They have a useful factsheet with backing evidence at www.sustainweb.org/pdf2/GFFOM_aug09.pdf.

35. All government and other statutory bodies' procurement should reduce the amount of animal products in catering, and only source those products from animals kept in high-welfare systems. For example, government canteens could have a meat free day or two per week and the NHS could reduce animal products in its catering.

36. The background inputs to local food also need to be considered when we are wishing to reduce our food footprint. If one considers all the impacts of industrial animal farming on animals, people and the planet, and the inputs (grain and soya for feed and the water needed to grow these), as outlined in our submission above, Compassion would argue that a "local" factory farm would be a complete contradiction in terms.

37. Good animal welfare is consistent with the other core objectives of food policy. Moving from intensive to more humane extensive forms of animal husbandry would help us to improve animal welfare, with healthier animals having reduced vulnerability to disease; it would procure more nutritious meat in the case of chicken; it would help achieve reduced environmental pollution and a less wasteful use of resources of land, water and energy.

38. A reduction in meat and dairy consumption would allow more extensive rearing with its associated welfare benefits and would facilitate a reduction in certain diet-related diseases and a fall in the greenhouse gas emissions generated by food production.

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4 April 2011

Written evidence submitted by the British Poultry Council

SUMMARY POINTS

1. Poultry meat is the most environmentally efficient of all meat proteins.
2. Improvements in poultry production yields and efficiency have resulted in major environmental benefits and reduced some land use change impacts.
3. Poultry meat consumption contributes just 1% of total UK greenhouse gas emissions.
4. Soybean meal is the most nutritionally and environmentally efficient protein crop for inclusion in poultry feed and other livestock feeds globally.
5. Most alternative protein crops that could be grown in UK contain more significant anti-nutritional factors that severely limits the proportion that could be included in poultry feed in place of soybean meal.
6. Criticism of UK imports of soybean meal confuses UK food self-sufficiency with sustainability of UK food.
7. Cattle-ranching is the major driver of deforestation of the Amazon and of attendant land use change impacts, though Brazilian soybean crops are implicated.
8. Responsible sourcing initiatives for soybean meal from Brazil are working.
9. More sustainable food requires greater environmental productivity in food outputs, from better knowledge transfer and new science.
10. More sustainable consumption requires consumers who are better informed about environmentally efficient and less resource intensive meats and other foods.

11. Producers, processors, retailers and consumers need to recognise and reduce waste at every stage of the food chain.

Introduction

1. The British Poultry Council (BPC) is a voluntary trade association representing the whole UK poultry meat chain from primary breeding through to slaughter and further processing. BPC member companies are responsible for slaughtering and processing over 90% of all chickens, turkeys, ducks, and geese farmed in the UK. These poultry are reared either on member companies' own farms or by farmers contracted directly with the companies.

2. The scope of this inquiry is wide and the subject is complex. It has been the subject of some very authoritative independent and objective scientific studies and reports in recent years. Some other publications that have been fed into this great discussion have been less objective, resting more on emotional appeals than on scientific rigor and have often confused UK self-sufficiency in food supply with sustainable food production.

3. This submission concentrates on the aspects of the discussion that mainly relate to poultry meat production and consumption in the UK.

Environmental Impact of UK Poultry Meat Sector

4. Life Cycle Analysis (LCA) addresses the environmental aspects and potential environmental impacts throughout a product's life cycle from raw material acquisition through production, use, end-of-life treatment, recycling and final disposal (ie cradle to grave)[1] LCA may also be "cradle to gate" measurements.

5. The environmental burdens and resource use in the production of livestock products in the UK as measured by LCA show that poultry (chicken) meat production is the most environmentally efficient with beef the least efficient.[2] The reasons for this are the productivity of the breeding stock with a parent hen producing around 150 chicks per year, very efficient conversion of feed into live-weight, and higher relative daily weight gain in chicken compared with other livestock species. These benefits have been achieved by improved genetics through selective breeding for production as well as well health and welfare traits, improved understanding of the nutritional needs of the birds, continual investment in housing and equipment, and in the training of stockmen.

Table 1

THE MAIN BURDENS AND RESOURCES USED IN ANIMAL PRODUCTION IN THE CURRENT NATIONAL PROPORTIONS OF PRODUCTION SYSTEMS[2]

Per tonne of carcass	*Beef*	*Pigmeat*	*Sheepmeat*	*Poultrymeat*
Primary energy used, GJ	28	17	23	**12**
$GWP_{100,}$ tCO_2	16	6.4	17	**4.6**
Eutrophication potential, kg PO_4	158	100	200	**49**
Acidification potential, kg SO_2	47.1	394	380	**173**
Pesticides used, dose per hectare	7.1	8.8	3.0	**7.7**
Abiotic resource use, kg antimony	36	35	27	**30**
Land Use *				
Grade 2, ha	0.04		0.05	
Grade 3a, ha	0.79	0.74	0.49	**0.64**
Grade 3b,ha	0.83		0.48	
Grade 4, ha	0.67		0.38	
* grazing animals use combination of land types. Land for arable feed crops was normalised at grade 3a				

6. LCA does not reach immutable conclusions—it needs to be continually updated as input mixes change and as innovations and technologies are taken up by producers. Preliminary results from a current Defra–funded LCA project updating and refining the input data on chicken production suggests that the environmental burdens of poultry in Table 1 above have mostly reduced or not increased since the 2006 study.

Raising Yields and Efficiency—Improving Poultry Sustainability

7. Within the EU, the poultry meat sector has not been cushioned by any EU CAP production subsidies and has therefore had to be entirely responsive to market signals. This has been a key driver in the sector's continuing improvements in productivity and efficiency in the use of all inputs including natural resources.

8. Improvements in poultry genetics and nutrition have had major environmental benefits. The 369 million chickens slaughtered in 1973 required just over 1.5million tonnes of feed. Now that same volume of feed will sustain 527 million chickens grown to the same live-weight.[3] This productivity increase represents a more than 40% effective reduction in the volume of feed and water required with obvious land use change benefits.

Improvements have been through increased daily weight gains, shorter growing cycles, more eggs and higher fertility from the parent birds, and better disease resistance.

9. Environmental benefits, as well as health and welfare benefits, accrue from better disease resistance and lower mortality rates because fewer birds have to be placed on farms in order produce the required volumes of poultry meat and requiring fewer natural resources and less land area for feed. Better specified diets have also reduced the volumes of poultry manure excreted per bird and the amount of nitrogen in poultry manure. One study estimates that nitrogen efficiency ie the amount of ingested nitrogen in the product, ranges from 7% for beef and sheep to 33% for poultry meat.[4] While greater focus in the UK on this aspect in recent years will have improved these figures, further increasing nitrogen efficiency in livestock has more potential for reducing environmental emissions.

10. Currently around three quarters of UK poultry litter/manure is used as a renewable fuel in electricity generation.

Low UK Food GHG Contribution

11. The direct GHG impact of food consumed in the UK account for an estimated 19% of the GHG impact of total UK consumption.[5] This figure is considered to be highly provisional. Around half of food's GHG emissions (8.5% of total UK consumption GHG) is estimated to come from agriculture mostly methane CH_4 from enteric fermentation in cattle and sheep, and nitrous oxide (N_2O) from both arable and grazed soils and manures. Poultry meat consumption accounts for just 1% of the total UK GHG emissions[6] even though it is by far the largest volume of all meats consumed.

12. Few studies have attempted to attribute measurements of global land use change (mainly deforestation) to the UK food supply chain. A study for WWF published in January, 2010 estimated that when global land use change emissions are considered, food consumption emissions rise from the 20% (for direct emissions) to 30% of total UK consumption emissions.[7] The study attributes three quarters of this global land use change emissions to ruminant meat.

13. Expansion of agriculture is considered the main driver of deforestation of the Amazon, with cattle ranching being mainly responsible. In Latin America 70% of previous forested land in the Amazon is occupied by pastures, and feed crops cover a large part of the remainder.[8]

The Need for Sustainably Sourced Soybeans

14. Soybean meal is the main protein feed ingredient in poultry feed and in the feed of other livestock globally. Soybeans are used for the extraction of soy oil for human consumption and increasingly for production biofuels, and for soybean cake and meal, a co-product, used in animal feed. Protein crops are an essential inclusion in poultry diets to provide the growing bird with the right nutrient balance, and soybean meal provides this in a form that the birds can most readily utilise. Compound feed diets of chickens reared for meat consist of around two thirds wheat and one quarter soybean meal.

15. A Friends of the Earth campaign against imported soybean meal for use in animal feed now recognises that most alternative protein crops that could be grown in the UK contain more significant anti-nutritional factors than soybean and this limits the proportion that could be included in feeds in place of soymeal.

16. A study, carried out by the Royal Agricultural College for FoE,[9] calculated that field beans could not be fed to chicks and could replace only 8% of soybean in chicken feed. Dried peas were not recommended to be included in chick or broiler chicken feed. Lupins could replace up to 12% of the soybean proportion of chicken feed. Oilseed rape meal could replace just 5% of the soybean in broiler chicken rations but could not be fed to other poultry. Sunflower could substitute for up to 9% of soybean in broiler chicken diets. The study did not recommend linseed be included in broiler chicken feed.

17. Potential incorporation rates for alternative UK protein crops are higher in ruminants, but any moves to significantly increase growing areas of protein crops in the UK would divert land from growing wheat crops for human and animal feed and could lead to wheat having to be imported instead. Substituting crops which are well suited to the UK climate and which are meeting food and feed demand, for feed-only crops, which are significantly less feed efficient than soybean meal, does not make environmental sense.

18. It is clear that, even if alternative protein crops could be grown in the UK, these would be of very little benefit in substituting soybean meal in poultry feed. Soybeans are considered to be the optimum protein feed input in relation to animal performance and in relation to any limiting anti-nutritional factors.[9]

19. The EU imports over 400,000 tonnes of poultry meat annually from third countries, mostly from Brazil and Thailand. If UK and EU poultry production capacities were significantly reduced through constraints on soybean meal feed imports, then the imported feed ingredient would be replaced by increases in imported meat. The environmental impact would be more damaging in that unlike the soybean meal, the meat has to be kept frozen throughout the whole chain.

Cutting Down Deforestation in Brazil

20. It is more important to focus policy initiatives on mitigating and preventing any damage to the Brazilian rainforest that could be attributable to soybean production, rather than seeking to demonise soybean production per se or UK soybean imports, whether from Brazil, Argentina or USA.

21. There are several initiatives, such as moratoria on sourcing soybeans (and beef) from recently deforested land in Brazil, and such as the world-recognised work of the Round Table on Responsible Soy started in 2005 by WWF and others. These initiatives are working. The Brazilian Government has policies designed to reduce deforestation by 80% by 2020.

22. Brazilian agricultural production is expected to increase substantially during the next 20 years but the total net area needed to produce the estimated volume of production of the selected crops (including soybeans) and beef is forecast to grow at an annual rate much lower than that in 2000 to 2009 ie 1.1% compared with 3.3%. It is expected that conversion of low productivity pastures to soybeans and sugar will not necessarily displace beef and dairy herds. Rather several technologies are available and being developed to recover pastures' productive capacity, improve soil fertility and increase stocking rates.[10]

23. Soybeans have significant natural and environmental advantages over other protein crops for both food and feed consumption. The use of imported soybean meal in animal feed is environmentally sustainable. The campaign against imported soybeans is confusing UK self-sufficiency in food with the more environmentally important food sustainability.

On-Going GHG Reduction

24. Further mitigation of the environmental impact of the poultry meat sector and other livestock sectors, is possible and is being pursued. The poultry and pig sectors have Climate Change Agreements with DECC with agreed energy reduction targets. New CCAs are to be negotiated this year. Pig and poultry farms over a certain size are required to be permitted by the Environment Agency and permits carry rigorous controls and requirements to reduce environmental emissions from all sources. An agricultural industry-wide GHG Action Plan will be launched in early April focussing on reducing CO_{2e} by 3Mt by 2022.

25. The Future of Food and Farming Report published in January, 2011[11] identifies five major challenges and their drivers. Though the actions proposed in the Report to address these global challenges necessarily reflect different geographical and geopolitical imperatives, we think that several of the actions are directly relevant to improving the sustainability of UK food production and consumption.

26. Some of the Foresight thinking on the way forward is already reflected in the "sustainable intensification" that has already improved the sustainability performance of the UK poultry meat sector over recent years.

Improving Rroductivity Sustainably using Existing Knowledge

27. Even in the UK which has a relatively high level of technological transfer there is good scope for improving the application of existing scientific innovations on farms to lower the environmental impact towards the lower resource intensive and lower GHG intensive management systems.

New Science and Technology to Raise the Limits of Sustainable Production and Address new Threats

28. Adequate and assured long term funding of appropriate science in the UK is vital to the reducing environmental impacts while increasing sustainable food production and to foresee and be able to counter future threats from climate change.

29. However, the take-up of new technologies by farmers will depend on the reaction of the public and NGOs. Hand in hand with the new science there must be determined and responsible effort to ensure their benefits are understood and accepted. Concerns over possible public reaction must not stifle good research, which could be taken up in countries whose scientific and regulatory processes are less politically constrained than in the EU.

Reducing Waste

30. Reducing the post-harvest waste in developing countries and waste from food thrown away in developed countries is highlighted in the Report. It is entirely possible within the existing available technologies. Also important is the waste from farming systems that could be reduced by better management to ensure sound animal health and welfare and reduction in farm animal diseases and mortalities pre-slaughter. Great advances have been made in this area but improved knowledge transfer and investment incentives for housing and equipment would help.

31. The controlled re-introduction of processed animal proteins in monogastric farmed animals would change a current waste stream back into a useful source of safe protein. This is part of the EU Commission TSE roadmap. However, it needs to be recognised as safe and acceptable by consumers for retailers to allow these proteins to be used.

Changing Consumption by Informing Consumers

32. Much of the research published to date points to meat and dairy products as being responsible for the greatest GHG emissions per unit of output and contributing most to land use change impacts through deforestation, particularly in the Brazilian Amazon. However, the scientific research confirms there are wide differences between the environmental efficiency and sustainability of different livestock species and farming systems.

33. Therefore any policy attempt to influence demand must clearly differentiate between the environmental impacts of different meats and other foods, and provide consumers with that information. There is significant potential for reducing the environmental impact of meat by moving from eating environmentally less efficient and resource intensive meats to eating by environmentally efficient and less resource intensive poultry meat.

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5 April 2011

Written evidence submitted by the Fairtrade Foundation

Executive Summary

— Food sustainability and international development are intrinsically linked. It is unlikely that efforts to improve the former will be entirely successful without fairly addressing the needs all actors in the supply chain. This lack of fairness is most keenly felt in food production originating in the developing world.

— Food waste takes place throughout the global supply chain and not just in developed countries. However, the causes and solutions to reduce food waste in low-income countries differ considerably from those in richer economies. The scale of the problem deserves greater public policy attention, which can easily be linked to international development goals.

— The Government is far from fulfilling its potential as a market-leader in sustainable and ethical procurement being trapped in a vicious circle of under-investment in procurement metrics preventing more intelligent purchasing.

— The Coalition Government is yet to fully reconcile in practical terms, its localism ambitions with it desire to be the "greenest Government ever".

1. Food Policy—Linking Sustainability and International Development

1.1 The UK imports £1.3 billion worth of food products from sub-Saharan Africa a year, constituting a small (roughly one percent) but significant proportion of UK food imports.[119] Food exports to the UK can be a substantial contributor to the economies of some poor countries and communities. Addressing the sustainability issues of food production from low-income countries requires special consideration because of the extreme poverty that affects all aspects of food production, from the choice of crops cultivated to the mode of transportation of goods used to get products to the UK.

1.2 There are considerable opportunities for linking developmental and environmental aspirations. Moreover, the synergies from combining the two may lead to greater effectiveness and efficiency for both. Conversely, environmental aims, as they pertain to low income countries, are unlikely to be successfully without proper consideration of the particular challenges faced by food producers in these countries. Therefore, there should be strong links between the Government's international development objectives and its food policy. The Fairtrade Foundation believes there is not sufficient coherence between these two areas. One telling example is a recent draft of the Review of Government Buying Standards for Food,[120] assessing the impact from setting new standards for Government food buyers that failed to mention any direct or indirect impact on international development from the £922 million spent by the Government on food.

1.3 The Fairtrade experience has shown that there is significant business interest in greater coherence between sustainability and development. For example, in 2008 Cadbury's committed to invest £44 million over a decade in its Cocoa Partnership, "to secure the economic, social and environmental sustainability of around a million cocoa farmers and their communities in Ghana, India, Indonesia and the Caribbean".[121] Sustainability and development were identified as drivers for this scheme as Cadbury's research revealed, "the average production for a cocoa farmer has dropped to only 40% of potential yield and that cocoa farming has become less attractive to the next potential generation of farmers". This demonstrates the business community has identified commercial drivers, to address both social and environmental factors in supply chains. Fairtrade acts as an important tool for many businesses in this respect.

1.4 *Recommendation*

Ending the interdepartmental policy silos for food, potentially through implementing an overarching cross-government food strategy, would help ensure environmental and developmental aspirations are being equally met..

2. Tackling Waste in the Entire Supply Chain

2.1 One obvious way to reduce the environmental impact of food is to require less to be produced. Therefore, waste reduction is clearly a significant route to improving food sustainability. The Government has funded initiatives to reduce consumer food waste in the UK.[122] However, waste will not be fully eliminated from the global supply chain unless there is public and private support to help poor farmers. Whilst rich world waste is a matter of behaviour, in low income countries a significant proportion of food is wasted in production because of the lack of resources, knowledge and technology. For example, grain will be stored on plastic sheets rather than sealed silos leaving it at greater risk of rats and spoiling. Such loss is estimated to be 30–50% in both rich and poor countries.[123]

2.2 Sustainability in the food sector therefore cannot fully be achieved without effective support being provided to producers, especially small scale farmers, who have the potential to significantly increase production efficiency. Experience from the Fairtrade system of the use of a social premium, afforded to the primary producer (provided through democratic producer organizations) to re-invest in the community and the business, shows that ensuring a greater capture of the value of the final product by small scale producers is an successful strategy to improving investment in small scale production systems.

2.3 *Recommendation*

The Government to review how its developmental interventions address waste in food production, as well as support innovation by providing incentives at the production level to invest in improved smallholder production systems, share costs and risks with businesses and by promoting fairer and equitable trading systems.[124]

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[121] http://collaboration.cadbury.com/ourresponsibilities/cadburycocoapartnership/Pages/cadburycocoapartnership.aspx

[122] http://www.lovefoodhatewaste.com/static/about_food_waste

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[124] Adaption of recommendation made in "Procurement for Development: Aligning Social with Commercial Considerations in the Supply Chain", Catherine Pazderka, Chatham House, September 2010 http://www.chathamhouse.org.uk/files/17423_bp0910procurement.pdf

3. Government Procurement—Setting an Example

3.1 The Government estimates it spends £922 million on food per annum.[125] This makes the Government one of the largest food purchasers in the country, with the opportunity to have a significant catalytic effect on food sector behaviour. We welcome Defra's recent review of the Government Buying Standards for Food, where this potential is acknowledged. However, this review process revealed significant flaws in the Government's understanding of its own purchasing behaviour preventing this full potential being realised.

3.2 The scarcity of accurate data on food specifications, such as premiums for higher standards, is an obstacle to greater improved purchasing practices.[126] However the Government is failing to rectify this.[127] This has become a vicious circle where its policy-setters refuse to set more ambitious targets for higher food standards, for fear of imposing new cost burdens, yet refuse to accurately assess the premium it pays, allowing it to potentially set more ambitious standards.

3.3 The Sir Philip Green Efficiency Review found that Government is failing to capitalise on the scale of economy to demand better prices from its suppliers.[128] Economies of scale can equally be used to demand improvements in the wider terms and conditions from suppliers, including more ethical and sustainable goods for a better price. This aspect of inquiry was absent from the review.

3.4 The Coalition Government is still to resolve the divergence between a drive to increased localism with the devolution of powers and decision making and its desire to be the "greenest Government ever". In procurement policy, it is unclear how the Government will impose green and ethical standards on decision-making bodies that are free to reach their own purchasing policy imperatives. Government Buying Standards do not apply to the NHS and local authorities for this very reason, and yet some of the largest gain in improving food sustainability and ethics are likely to be found in these high food consuming parts of Government.

3.5 *Recommendation*

- Government to build on the Sir Philip Green findings, to explore how economies of scale can be used to demand greater sustainability and ethical standards from Government food suppliers.
- Government should invest in Purchase Management Systems that allow it to better collect data on the specifics of the food products its purchases. This would improve policy setting, allowing better assessment of the environmental and developmental impacts of its purchases and facilities negotiations for better prices.
- Examine and introduce mechanisms, such as incentives or penalty, to induce green and ethical decision-making in an increasingly devolved decision making framework.

4. Supermarket Regulation

4.1 Open and transparent supply chains are a necessary component of a sustainable and ethical food system. Supermarkets are the gate-keepers to much of the UK consumer food supply chain. They must balance meeting consumers' demands, particularly on price, against the danger of abusing their dominance to the detriment of the environment, workers and producers in the supply chain.

4.2 The Government's intention to introduce a Grocery Code Adjudicator (formerly Supermarkets Ombudsman) is welcome, but there is a danger that opportunities to fully tackle this abuse will be missed if this Adjudicator is not able to respond and react to the needs of primary producers, outside the UK and EU, who supply into these markets.

4.3 If the Adjudicator is to be successful in preventing supermarkets unfairly imposing risk on its suppliers, which in turn can undermine the environment and workers, it must be geared to the needs of suppliers susceptible to such pressure. However, there is little evidence the Government has taken steps to ensure the Adjudicator will be able, or has a duty to give special consideration of the needs of complainants who do not have the resources to make articulate arguments with legal support.[129]

4.4 *Recommendations*

The Government should carry out a full assessment of its proposed Grocery Code Adjudicator to ensure it is able to effectively deal with complaints from suppliers in low income world.

[125] "Draft Impact Assessment of 'Government Buying Standards' specifications food and food services", Defra, 2010.

[126] For example, the Government is unable to accurately assess the price it pays to buy Fairtrade tea and coffee, therefore this has led to an arbitrary assumption of 15% premium, which would appear to be a gross overestimation for what one of the largest food buyers in the country should pay.

[127] Written Parliamentary Answer, 28 March 2011 from Jim Paice, Defra Minister http://www.theyworkforyou.com/wrans/?id=2011–03–28a.48582.h&s=reporting+burden+fairtrade#g48582.r0

[128] http://download.cabinetoffice.gov.uk/efficiency/sirphilipgreenreview.pdf

[129] "Taking forward the establishment of a body to monitor and enforce compliance with the groceries supply code of practice (GSCOP): The Groceries Code Adjudicator", BIS, August 2010 http://www.bis.gov.uk/assets/biscore/business-law/docs/competition-matters/10–1011-groceries-supply-code-practice-government-response.pdf

5. Carbon and Global Food Production

5.1 Developing countries have legitimately argued that their citizens and their ancestors are not responsible for the majority of the greenhouse gas emissions in the atmosphere. Therefore, we support a global carbon finance mechanism that properly compensates poor countries for lost income opportunities and does not unfairly penalise countries which have a legitimate need to develop.

5.2 There is understandable concern about the sustainability of air-freighting fruit, flowers and vegetables. However it is important to consider this concern in the correct context. In 2005, £105 million worth of vegetable and £89 million in fruit were imported into the UK from sub-Saharan Africa, supporting the livelihoods of an estimated 1 to 1.5 million people.[130] Whilst carbon intensive on a per unit basis, this represents a fraction of the total emissions associated with UK food production. Dropping this trade overnight, with investing resources and time in providing viable alternatives would have negative developmental impacts disproportionate to the potential carbon savings. The Fairtrade Foundation supports systems that correctly price the externalities of production and transport in a way that does not punish the poor.

6. Solutions for More Sustainable Food

6.1 The Fairtrade system can be viewed as a non-governmental initiative to address the developmental shortcomings of the food supply system. There are several aspects of the Fairtrade experience that can potentially be used to help improve the environmental impact of food. Fairtrade labelling has shown that government's encouragement and support for voluntary labelling and standards systems can be an effective approach to creating changes in the food sector. In spite of tough economic times, Fairtrade sales reached £1.17 billion in 2010, helping over 7.5 million producers, workers and their family in some of the poorest countries in the world.

6.2 Although less measureable, beyond the direct benefit to producers, Fairtrade labelling has arguably created space and momentum for greater ethical consideration by shoppers, providing opportunities for further action by business and government.

6.3 Labelling based only on carbon footprint or food miles is not currently a viable option. It is important in any public education that an appropriate balance is maintained between concerns about environmental impact (based on life cycle analysis) and social justice.

6.4 The Government could do more to recognise the cross-over of standards. Fairtrade standards include strong environmental considerations. For example, the use of 128 chemicals are either prohibited or severely restricted in the production of Fairtrade products. However the environmental benefits of Fairtrade have never been explicitly acknowledged in Government procurement guidance.[131]

6.5 The success of Fairtrade provides an example of how innovative local campaigning can lead to significant changes in consumer understanding and behaviour. Public education has a significant role to play in deepening understanding about the food system and affecting consumer behaviour, but it needs to be delivered in innovative and appropriate ways.

6.6 *Recommendation*

As the public sector is a considerable consumer, without whose business many suppliers would struggle, it is vital to ensure public procurement rules and regulations, including those set by the EU, continue to allow public buyers to support initiatives such as Fairtrade.

The government should seek to support organizations that are able to provide effective public education on sustainable consumption.

About the Fairtrade Foundation

The Fairtrade Foundation is a registered charity (no. 1043886). It is also a company limited by guarantee, registered in England and Wales (no. 2733136). Our vision is of a world in which justice and sustainable development are at the heart of trade structures and practices so that everyone, through their work, can maintain a decent and dignified livelihood and develop their full potential.

To achieve this vision, Fairtrade seeks to transform trading structures and practices in favour of the poor and disadvantaged. By facilitating trading partnerships based on equity and transparency, Fairtrade contributes to sustainable development for marginalised producers, workers and their communities. Through demonstration of alternatives to conventional trade and other forms of advocacy, the Fairtrade movement empowers citizens to campaign for an international trade system based on justice and fairness.

8 April 2011

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[130] "Fair miles: recharting the food miles map" IIED, Dec 2010 http://pubs.iied.org/pdfs/15516IIED.pdf

[131] GENERIC FAIRTRADE STANDARDS, FLO Prohibited Materials List http://www.fairtrade.net/fileadmin/user_upload/content/FLO_Prohibited_Materials_List_Dec_2007_EN.pdf

Written evidence submitted by Oxfam

Oxfam welcomes the opportunity to make a submission to the Environmental Audit Committee's inquiry into the environmental and social consequences of food production and consumption. Oxfam works with partners around the world to find lasting solutions to poverty and injustice. Currently, we work in more than 70 countries—including the UK—and respond to an average of 30 emergency situations each year. Oxfam believes that people are entitled to five fundamental rights: a sustainable livelihood; basic social services; life and security; to be heard; and equity. We work to support people in realising these rights and fight poverty and suffering through campaigning, long-term development work, and emergency response. Oxfam GB is a member of Oxfam International, a confederation of 14 Oxfam affiliates around the world.

Summary

1. At the current time, the world faces the unprecedented challenge of pursuing human development, and ensuring food for all, in ways that will both keep the planet within essential ecological boundaries and end extreme poverty and inequalities. There are three major challenges that the new global system must meet in order to achieve this goal:

— The production challenge: we must produce enough nourishing food for nine billion people by 2050 whilst remaining within planetary boundaries for the use of land, water and atmospheric space, among others;

— The equity challenge: we must empower women and men living in poverty to gain the resources to grow or to buy enough food to eat; and

— The resilience challenge: we must manage volatility in food prices, and reduce vulnerability to climate change.

2. To accomplish these three major challenges, the UK government has an opportunity, and a responsibility, to contribute to three essential shifts:

— Prioritise the needs of small-scale farmers in developing countries by: reversing the CAP subsidies that reward agro-industrial farms in the North while penalising small-scale farmers in developing countries; increasing funding support for smallholder agriculture (and especially women) in developing countries specifically to access natural resources, technology, and markets; and following through on food security commitments.

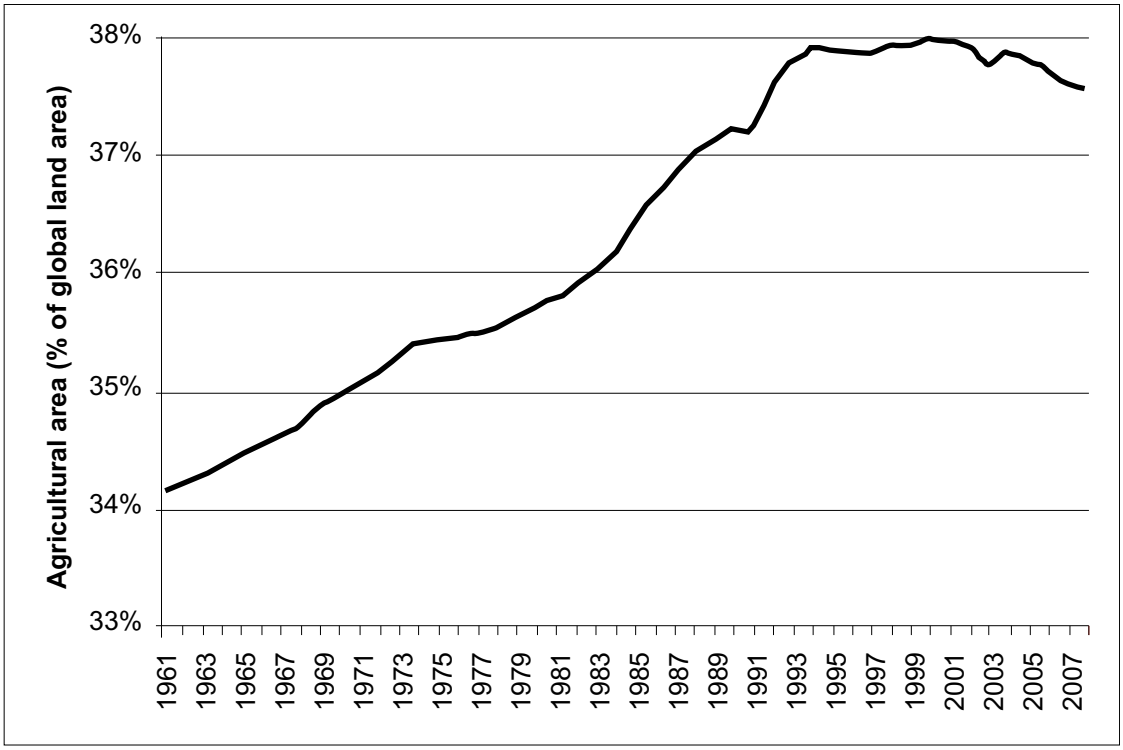
— Build resilience and increase equity by reforming international governance of trade, food aid, financial markets, and climate finance in order to reduce the risks of future shocks and to respond more effectively when they occur.

— Create needed policy frameworks including a global deal on climate change, and ensure a new global climate fund is operationalised and financed using innovative mechanisms such as a financial transactions tax or levies on international aviation and shipping. New global regulations are also needed to govern investment in land to ensure it delivers social and environmental returns.

How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?

3. Population growth and changing diets are creating rising food demand. These demands must be met from a rapidly depleting resource base: land has already been lost through erosion, desertification, salination, toxification, nutrient depletion, overcultivation, overgrazing, acidification, and soil compaction.[132] Further, this resource base is being squeezed by other uses such as biofuel production, carbon sequestration and forest conservation, timber production, and non-food crops. As a result, the share of land devoted to food production has peaked (see figure below.)

[132] Evans, L T 1998. Feeding the ten billion: plants and population growth. Cambridge University Press.



Source: Calculated from http://faostat.fao.org/site/377/default.aspx

4. Water, a critical resource for agriculture, is also becoming constrained. Nearly three billion people live in areas where demand outstrips supply.[133] In 2000, half a billion people lived in countries chronically short of water; by 2050 the number will have risen to more than four billion.[134] By 2030, demand for water is expected to have increased by 30%.[135] Agriculture accounts for 70% of global fresh water use,[136] and is both a driver and increasingly a victim of water scarcity.

5. As the availability of land and water becomes increasingly limited and demand intensifies, many governments in developing countries are offering up large areas of land, often amidst corruption and for very low prices. Companies, investors, and food-insecure governments are all rushing to secure supplies of land. This began with the 2008 food price crisis, and continues unabated: in 2009, Africa saw 22 years' worth of land investment in 12 months (see Figure 5).[137]

6. And, while governments, companies, and investors are obtaining land, smallholders are struggling to gain access. In Guatemala less than 8% of agricultural producers hold almost 80% of land—a figure that is not atypical for Central America as a whole.[138] There is a further gendered aspect to the problem: in those developing countries for which data are available, women account for only 10–20% of landowners.[139] They are often responsible for most food production, yet they are systematically discriminated against by land tenure arrangements which make it hard for them to access land on the same basis as men. New global regulations are needed to govern investment in land to ensure it delivers social and environmental returns.

7. One factor that is encouraging these land grabs is production of biofuels, placing a growing demand upon limited arable land. Biofuel mandates such as those in the EU, introduce major sources of new demand into food markets that are inflexible, amplifying price movements. And by making crops substitutable for oil, biofuels facilitate contagion between energy markets and food markets. If the EU continues on the current course of action, it may derive 10% of transport energy from biofuels (primarily biodiesel) by 2020. Oxfam estimates that even if the EU excludes all biodiesel produced from deforested land, indirect effects such as palm oil partially replacing other edible oils diverted for biodiesel use could result in emissions from deforestation of up to 4.6 billion tonnes of CO_2—nearly 70 times the annual CO_2 saving the EU expects to make by reaching

[133] D Molden (ed) (2007). *Water for Food, Water for Life: A Comprehensive Assessment of Water Management*, London: Earthscan, and Colombo: International Water Management Institute.

[134] R Clarke and J King (2004). *The Atlas of Water,* London: Earthscan Books.

[135] http://www.bis.gov.uk/go-science/news/speeches/the-perfect-storm

[136] D Molden (ed) (2007). *Water for Food, Water for Life: A Comprehensive Assessment of Water Management*, London: Earthscan, and Colombo: International Water Management Institute.

[137] Demand for land in Africa has been estimated by the World Bank as 39.7m hectares in 2009, compared with a mean annual area expansion of 1.7m hectares over the period 1961–2007.

[138] Censo Agropecuario Nacional 2003. www.ine.gob.gt/

[139] This aggregate figure masks important differences between countries even within the same region. In Africa, for example, the share of landowners who are women ranges from less than 5% in Mali to over 30% in Botswana, Cape Verde and Malawi.

its 10% target in 2020.[140] Costly biofuel programmes also draw funding away from other, more beneficial programmes. Support measures for biofuel programmes currently cost about $20 billion a year worldwide, and this is set to more than double by 2020.[141] Dismantling support measures such as blending and consumption mandates, subsidies, tax breaks, and import tariffs would be good for taxpayers and better for food security.

8. While resource constraints are already impacting food production, climate change is an additional threat. First, it will impact growth in yields: estimates suggest that rice yields may decline by 10% for each 1°C rise in dry-growing-season minimum temperatures.[142] Second, it will increase the frequency and severity of extreme weather events such as heatwaves, droughts and floods. Changes in the seasons—longer, hotter dry periods, shorter growing seasons, and unpredictable rainfall patterns—are already bewildering poor farmers, making it harder for them to decide when best to sow, cultivate, and harvest their crops.[143] To stop excessive greenhouse gas emissions from devastating the livelihoods of men and women living in poverty, a global deal on climate change must be reached.

9. Climate change will also exacerbate food supply shocks, further impacting volatile prices. Poor wheat harvests in 2006 and 2007 were identified by some as contributing factors to the last crisis. Adaptation is an urgent priority for developing countries, which Oxfam estimates will cost $100 billion a year by 2020. Moreover, the institutional framework for delivering climate finance is a complicated mix of multilateral and bilateral channels, massively increasing transaction costs for developing countries trying to access the funds available. A new global climate fund is needed to act as a one-stop shop for developing countries. Such an institution was agreed at the international climate talks in Cancun in 2010, but countries must now urgently ensure this agreement is acted upon. Reaching agreement on a set of innovative funding mechanisms—such as a financial transactions tax or levies on international aviation and shipping—which can raise the money automatically remains a critical priority for the international community and is on the agenda of the G20 in 2011.

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

10. The case for government-led investment in smallholder farming and supporting infrastructure is clear. Investing in smallholder agriculture will build resilience and boost incomes and food availability in hunger hotspots, especially if the investment is sensitive to gender inequalities.[144] Furthermore, history shows that investing in agriculture has provided a crucial "growth spark" in the take-off of most successful developing economies.[145]

11. The 500 million small farms in developing countries support almost two billion people, nearly one-third of humanity,[146] and do so without the access to markets, land, finance, infrastructure and technologies that large farms have. Addressing this inequity offers a crucial opportunity to address the challenges of sustainable production and resilience. Pressures on land and water can be reduced through new practices and techniques that boost yields, use soils and water more sensitively, and reduce their reliance on inputs—techniques such as drip-feed irrigation, water harvesting, low- or zero-till agriculture, agroforestry, intercropping, and the use of organic manures. These would also significantly reduce the carbon footprint of agriculture.

12. In order to free up large budgetary resources to accomplish this needed investment in smallholder farms, the trade-distorting support measures of the North can be removed. This would not only positively impact developing country small farmers, but also consumers of the North because the costs of Northern country agricultural support policies are borne both by poor farmers in the developing world and by people in developed countries. These consumers pay twice—first through higher tax bills, and second through higher food prices. It is estimated that in 2009, the EU's Common Agricultural Policy (CAP) added €79.5 billion to tax bills and another €36.2 billion to food bills.[147] According to one calculation, that costs a typical European family of four almost €1,000 a year. And, although the CAP is meant to help Europe's small farmers, about 80% of direct income support is given to the wealthiest 20%—mainly big landowners and agribusiness companies.[148] Support to Northern agricultural sectors also distorts trade—for example, by restricting market access or by incentivizing over-production and dumping—and therefore directly undermines the development of resilient agricultural sectors in developing countries.

[140] Oxfam International (2008) "Another Inconvenient Truth".

[141] IEA (2010) World Energy Outlook 2010 estimates support for biofuels in 2009 was $20 billion, the bulk of it in the USA and EU. This figure is projected to rise to $45 billion by 2020 and $65 billion by 2035.

[142] Based on one study in the Philippines, see http://www.jstor.org/pss/3372571

[143] S Jennings and J Magrath (2009). "What Happened to the Seasons?", Oxfam GB paper presented at the Future Agricultures Consortium / Centre for Social Protection conference on seasonality, Institute of Development Studies, University of Sussex, Brighton, 8–10 July 2009.

[144] Agriculture is the most important source of employment for women in rural areas in most developing country regions. FAO (2011) State of Food and Agriculture.

[145] Growth originating in agriculture, in particular the smallholder sector, is at least twice as effective in benefiting the poorest people as growth from non-agricultural sectors. FAO (2010) "How to Feed the World", p.2. See also Ha-Joon Chang (2009) "Rethinking public policy in agriculture: lessons from history, distant and recent", *Journal of Peasant Studies*, Volume 36, Issue 3, July 2009, pp.477–515.

[146] http://www.ifad.org/operations/food/farmer.htm

[147] OECD (2009). "Agricultural Policies in OECD Countries: Monitoring and Evaluation 2009".

[148] Legrain (2010). "Beyond CAP: Why the EU Budget Needs Reform", the Lisbon Council e-brief, Issue 09/2010.

13. Support for agriculture in developing countries has been in decline for the past few decades and its share of Official Development Assistance (ODA) reached a low point in 2006. Although it has been on the rise since then, it still is under 7% of all aid.[149] This rise in agriculture spending within overall ODA must continue. While Oxfam applauds the 2009 L'Aquila Food Security Initiative (AFSI) commitments of $22 billion for aid on agriculture, food security and nutrition over three years to address food insecurity, it is critically important not just to deliver on these commitments, but to follow through on promises of delivery mechanisms. The UK should provide sufficient resources for food assistance in emergencies, support national and regional plans, and pay particular attention to sustainable agriculture, smallholders and women. It is important not to double count funds committed for other purposes such as climate change adaptation. As one of the leading countries contributing to the AFSI, the UK has a responsibility to encourage partner countries to uphold their commitments as well so that the overall initiative is a success.

How can consumers best be helped to make more sustainable choices about food?

14. While some point toward consumers as the solution to the problems of increasing demand and constrained resources, and there are positive consumer choices that can be made, consumers on their own cannot fundamentally change the playing field. The long-term focus should be to solve the critical problems in the food chain such that consumers are not forced to choose between sustainable and equitable food purchasing and that which is damaging to people and the environment.

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

15. The simple question facing policy makers is: who will sustainably generate the agricultural surpluses needed to feed a growing population, and how? Although large farms have a role to play, yields are already in decline. Global aggregate growth in yields averaged 2% per year between 1970 and 1990, but plummeted to just over 1% between 1990 and 2007. This decline is projected to continue over the next decade to a fraction of 1%.[150] Moreover, today's large farms tend to have large ecological footprints, thus undermining the human and natural resources on which food production depend.

16. Yet, throughout the developing world, there is huge untapped potential for yield growth in small-scale agriculture.[151] If the three challenges set out above are to be met, then sustainable models of smallholder production must be the focus of attention. And while less input-intensive, more climate-friendly agricultural practices are not exclusive to small farmers, they are often well suited to this scale of production, and easily adopted.

17. In order to tap smallholders' ability to increase production, they first must have access to markets. But increasingly markets are governed by small numbers of companies, giving middlemen, processors, aggregators, freighting companies and those controlling brands and distribution more control than farmers. It is estimated that a few hundred companies—traders, processors, manufacturers, and retailers—control 70% of the choices and decisions in the food system globally, including those concerning key resources such as land, water, seeds and technologies, and infrastructure.[152] By setting the rules along the food chains they govern—for prices, costs, and standards—they are able to decide where most of the costs fall and where the risks are borne. In so doing, they extract much of the value along the food chain, while the costs and risks tend to cascade down onto the weakest participants—generally the farmers and labourers working at the bottom.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

18. As shown above, the lack of sustainability in the food system is an international and systemic problem, and whilst national action will be important, the UK must think internationally. The real investment opportunities for transforming agriculture towards more sustainable and inclusive models of production lie in the developing world. A localism agenda could unfairly penalise small producers in poor countries whose per capita emissions are minor compared to those of developed countries. Food miles are more complex than "local is good". While the distance food is transported is one important aspect of the environmental footprint of the food we eat, there are other aspects of food production processes that contribute to greenhouse gas emissions. When compared to people in developed countries, those in developing countries are responsible for much lower levels of greenhouse gases. And, many livelihoods in developing countries are dependent on export markets. An estimated 1 to 1.5 million livelihoods in sub-Saharan Africa depend directly and indirectly on

[149] Down from 20.4% in 1983. Calculated from OECD DAC5 Official Bilateral Commitments by Sector database. Includes forestry and fishing.

[150] Trostle USDA (2008), ibid. Demand for food is expected to increase at an average rate over 1.3% per year through to 2050 (average compound growth rate, based upon a 70% increase in demand by 2050).

[151] In the semi-arid tropics, which lie primarily in developing countries where agriculture is almost entirely rain-fed and largely comprises poor, smallholder farms, potential yields under high inputs and advanced management are on average 3.6 times more than the current average yields. Soil moisture management and rainwater harvesting practices could add an additional 10% on average to these high input potentials while further reducing the variability in yields and number of failure years. See http://www.iwmi.cgiar.org/assessment/files_new/publications/ICRISATReport_54.pdf

[152] Retail, finance, and the future of food. Report from the conference *Future of food: an exploration of the global food system,* London April 28, 2010. http://www.future-of-food.com/downloads/2010/london/report_20100428.pdf

UK-based supply chains.[153] To take Kenya as an example, the average Kenyan is currently responsible for 0.3 tonnes of CO_2 equivalent per year while the average Briton is responsible for 10.6 tonnes. Further, all Kenya-UK airfreight trade in fruits and vegetables contributes only 0.1% to total emissions for the UK.

15 April 2011

Written evidence submitted by Friends of the Earth

Friends of the Earth welcomes the opportunity to respond to the EAC's inquiry on sustainable food. How our food is produced and consumed has a direct impact on the environment and our health—ensuring it is produced and consumed sustainably is vital to tackle climate change and global biodiversity loss, and to enable healthy, fair and sustainable diets for everyone here and globally.

SUMMARY

- To address global deforestation and runaway climate change, the considerable environmental and social damage caused by production and consumption of intensive livestock products must be tackled.
- Intensive farming methods in Europe rely heavily on high-protein animal feeds from South America, where forests and other precious habitats are cleared to make way for soy monocultures, causing greenhouse gas emissions, major biodiversity loss, and forcing local communities from their land.
- Producing and consuming less meat and dairy would reduce greenhouse gas emissions and biodiversity loss, and would free more land and water for producing food direct for human consumption. Friends of the Earth's research shows we can feed a growing population sustainably, equitably and humanely if we reduce meat and dairy in western diets.
- The Government has a vital role in influencing production and consumption of food by setting targets for healthy and sustainable food and farming and a challenging policy framework to meet them—but current Government support is going in the wrong direction, with large amounts of taxpayers' money spent on subsidies propping up factory farming and unsustainable food purchased in the public sector.
- Evidence shows healthy and sustainable diets contain less meat and dairy—public menus should reflect this, and the Government should run a public information campaign to raise awareness.
- The dominance of the food system by global agribusiness and concentration in the grocery sector is key to driving intensification and environmental problems, as illustrated in the meat supply chain.
- Concentration in the UK grocery market has given the big supermarkets huge buyer power to drive down prices and conduct unfair supply chain practices which force farmers to intensify production, harming the environment and ultimately consumers.
- The Government should urgently implement the recommendations of the Competition Commission for a Competition Test and an Ombudsman/Grocery Code Adjudicator.
- Urban agriculture, allotments and other local food growing spaces have benefits for food supply, health, environment and community cohesion, and their growth should be enabled through national and local planning policies.
- National planning policy must strongly discourage out-of-town development and instead facilitate the survival and growth of the local economy and small independent retailers. Local Enterprise Partnerships should have a mandatory function to support the local food economy.
- The potential of public sector spend on food to create a market for healthy and sustainable produce is unrealised. Voluntary initiatives on sustainable public food have consistently failed, and emerging Government Buying Standards will apply to only Government departments. Mandatory standards should apply across the wider public sector and include criteria for less and better meat and dairy.

How can the environmental and climate change impacts of the food we choose to eat best be reduced? What are the land-use trade-offs that affect food production and supply and how should these be managed?

1. Food production and consumption is a major driver of climate change and global biodiversity loss. To address global deforestation and runaway climate change, the considerable environmental and social damage caused by production and consumption of intensive livestock products must be tackled.

2. The UN have estimated that the livestock sector globally is responsible for 18% of greenhouse gas emissions.[154] Demand for livestock also puts pressure on land to produce the grain and protein feedstocks. Livestock uses 70% of all available agricultural land, and uses 8% of the human water supply.[155]

3. Intensive farming methods in Europe rely heavily on high-protein animal feeds, which have created a global food chain in which UK poultry, pigs and cattle depend on feed crops from the other side of the world.

[153] Chi,K, J MacGregor, and R King (2010). Fair miles: recharting the food miles map. IIED and Oxfam.
[154] FAO (2006) Livestock's Long Shadow.
[155] FAO (2006) Livestock's Long Shadow.

Soy, grown and imported from South America, has become the main source of protein in animal feed. Forests, savannah and other precious habitats are converted to soy monocultures, causing greenhouse gas emissions, major biodiversity loss, and forcing local communities from their land.

4. Producing and consuming less meat and dairy would reduce greenhouse gas emissions and biodiversity loss, and would free more land and water for producing food direct for human consumption. Friends of the Earth's report *Eating the Planet* showed that we can feed the growing global population far more efficiently, sustainably and humanely by eating less meat and dairy in developed countries and allowing for a more equitable distribution of food and a more nutritious diet for people in developing countries.[156]

How can the Government help to deliver healthy food sustainably, whilst also delivering affordable food for all?

5. The Government has a vital role in influencing production and consumption of food by setting targets for healthy and sustainable food and farming and a challenging policy framework to meet them. But current Government support is going in the wrong direction. We are spending huge amounts of taxpayers' money on subsidies that make the problem worse, or buying food for our schools and hospitals that is not produced using the best farming methods.

6. Friends of the Earth has calculated that an estimated £700 million of English taxpayers' money was spent on propping up factory farming through the CAP in 2008, undermining small farms and rural livelihoods.[157] Instead, we should be using the agriculture and rural development funds available under the CAP and in domestic programmes to support a switch to grass-based and extensive meat and dairy production and to promote home-grown protein crop production. Support from farm subsidies should also be used to ensure the UK maintains traditional livestock farming such as on the uplands which, at sustainable stocking levels, has major benefits for landscape, biodiversity and carbon storage and to allow sustainable and high animal welfare farming to compete in the marketplace.

7. Although finance comes via the EU, the UK can decide how it spends much of the CAP funding. This must be redirected to support small and sustainable farming. CAP reform in 2013 offers the opportunity for a radical new European policy that will deliver planet-friendly farming in the long term and support rural livelihoods.

8. A focus on consumption is also urgent and necessary. UNEP's Global Biodiversity Outlook 3 set out the need to "tackle the indirect drivers of biodiversity loss... by encouraging more moderate, less wasteful—and more healthy—levels of meat consumption".[158]

9. In its report on sustainable diets, the Sustainable Development Commission concluded that one of the changes likely to have the most significant impact on making our diets healthier and more sustainable would be to reduce consumption of meat and dairy products.[159]

10. The average Briton eats three times as much meat as recommended by the World Health Organisation. Overconsumption of meat has been linked to diet-related diseases including, heart disease, strokes and some cancers. This has a direct cost to the public purse through treatment.

11. Modelling carried out by Oxford University for Friends of the Earth shows that switching to lower but better meat diets could prevent around 45,000 early deaths and save the NHS £1.2 billion per year.[160] Specific health benefits of a reduced meat diet include reductions in unhealthy saturated fats and cholesterol in diets, overconsumption of which is linked to cardiovascular disease, and reduced incidence of some forms of cancer linked to high consumption of red and processed meat.

How can consumers best be helped to make more sustainable choices about food?

12. Consumers can be helped to make more sustainable choices through information, labelling and "choice editing" of products—that is, taking the most unsustainable choices off the menu or shelf thereby limiting choice to sustainable options.

13. Friends of the Earth is calling for public menus to be aligned with advice on sustainable and healthy diets to set an example for consumption—for example the World Cancer Research Fund recommends an average daily intake of no more than 70g of red meat.[161] The proportion of meat and dairy available on public menus should reflect this and that meat which is on offer should be sustainably produced.

14. The Government should also run a major public marketing campaign aimed at achieving specific dietary changes which incorporate less but better meat ("better" meaning reduced global environmental impact). To be effective it would need to reach different consumer audiences and provide support and advice for consumers as well as information on their choices. Industry action will be a valuable part of this measure but will not, by

[156] Friends of the Earth/Compassion in World Farming (2010) Eating the Planet: Feeding the world without trashing the planet.
[157] Friends of the Earth (2009) Feeding the Beast.
[158] UNEP (2010) http://www.cbd.int/doc/publications/gbo/gbo3-final-en.pdf
[159] SDC (2010) Setting the Table: Advice to Government on healthy and sustainable diets.
[160] Friends of the Earth (2010) Healthy Planet Eating.
[161] WCRF (2007) Food, nutrition, Physical Activity and Prevention of Cancer: A Global perspective.

itself, be adequate to change the nation's diet. This could build on the lessons learnt in the Department of Health's five-a-day programme. Awareness of the five-a-day message is increasing, albeit slowly, as is fresh fruit consumption.

Which aspects of the food production and supply chain are presenting the biggest problems for the sustainability of the food industry?

15. The meat and dairy sector is a major hotspot of environmental impacts as outlined above.

16. The dominance of the food system by global agribusiness and concentration in the grocery sector is key to driving intensification and environmental problems, as illustrated in the meat supply chain.

17. For example, the corporations involved in the soy supply chain are the key drivers of expansion and intensive production. Multinational companies such as Cargill and Bunge dominate the soy industry, buying beans, running crushing mills and exporting soymeal and oil to the UK and rest of Europe. Cargill also owns one of the UK's main chicken processing companies and processes one million chickens a week in the UK, highlighting their control in every step of the supply chain.[162]

18. In the UK grocery supply chain, the big four supermarkets control over three-quarters of the retail grocery sector—with Tesco alone accounting for 31%.[163] This gives them huge buyer power to dictate terms of trade to farmers and drive down prices—forcing farmers to intensify production and produce more for less.

19. It is vital that the Government implements the recommendations of the Competition Commission's 2008 report from its inquiry into the grocery sector: a Competition Test to stop a supermarket opening a store where it already controls 60% of the local market, and a supermarket Ombudsman or Grocery Code Adjudicator (GCA) to enforce a Code of Practice stopping abusive supply chain practices.

How might the changing powers of local authorities and the localism agenda hinder, or be used to encourage, more sustainable production and supply of food?

20. Despite the steady erosion of local food infrastructure resulting from the drive to centralise, there has been a growth in interest in local food, with local food networks flourishing through the transition town movement, farmers' markets and local food growing initiatives. More support must be directed towards local food networks because of the wider benefits they bring, including supporting local economies and cutting down on transport. There is an important role for public procurement in supporting local food networks.

21. Urban agriculture, allotments and other local food growing spaces must be encouraged and enabled in national planning policy and by local authorities in proactive planning policy and development control, for the benefit of our food supply as well as the wider community benefits for health, cohesion and the local environment.

22. Small and locally-owned shops must be valued for the benefits they bring to the local economy and community. Small shops and street markets are vital for low income groups and those with limited mobility, such as the elderly. Independent retailers are operating in a fiercely challenging environment with unfavourable economic conditions and dominance of the grocery sector by a handful of retailers with the power and resources to use the planning system to their advantage. National planning policy must facilitate a resurgence of the local economy.

23. Friends of the Earth supports revitalised, sustainable and diverse town centres, and believes that national planning policy must set a framework for local and neighbourhood plans which strongly discourages out-of-town development and instead facilitates the survival and growth of the local economy and small independent retailers.

24. Local Enterprise Partnerships have a role in supporting local food economies but the emerging agendas of LEP Boards do not offer much encouragement. Supporting the local food economy must be made a mandatory function of LEPs.

How could Government procurement practices be improved to promote better practice across the food sector?

25. More than £2.2 billion—about 7% of all the money spent in the UK catering sector—is spent every year feeding patients, pupils and other public sector service users.[164] This is money which could be used to create a market for healthy and planet-friendly food, that is currently squandered on unhealthy and unsustainable food.

26. Standards for public sector food purchasing are currently very weak and the potential the public purse has to transform our food system has not been realised. A glut of voluntary initiatives has been introduced, each failing to make a difference to the standard of food on the public plate.[165] This is particularly evident for the standards and quantity of meat and dairy on public menus. It is not currently possible to say exactly how

[162] Friends of the Earth (2008) What's feeding our food?
[163] Competition Commission (2008) Final report of Grocery Market Inquiry.
[164] National Audit Office (2006) Smarter food procurement in the public sector.
[165] Sustain (2009) A decade of hospital food failure; Sustain (2010) Yet more hospital food failure.

much of the annual £2.2 billion spent on food goes on meat and dairy, but data from household expenditure surveys suggest the amount could be around £0.77 billion.[166]

27. According to research by Sustain—the alliance for better food and farming—over £53 million of Government money has been spent in the last ten years on voluntary initiatives to improve the sustainability of public sector food, with no demonstrable benefit for health or the environment.[167] This includes the flagship Sustainable Food Procurement Initiative which set out, amongst other things, to improve consumption of healthy and nutritious food, improve sustainability of production and promote animal welfare. After six years—and around £2.5 million of taxpayers' money—the initiative was wound up after an evaluation concluded that its take-up had been limited and it had failed to make the impact it had sought.[168]

28. More recent efforts to improve public sector food include the Healthier Food Mark, which despite the use of an extensive team of management consultants for its development, and being part of official Government policy on food, didn't manage to progress beyond the pilot stage. The emerging Government Buying Standards for food will apply only to Government departments, representing a fraction of total spend on food in the public sector, and the standards are very weak on sustainability with for example no criteria on meat and dairy consumption.

29. The drive for short-term financial savings—rather than investing in better quality food for longer term health, sustainability and economic benefits—means cheap, processed meat is the norm. Less but better meat and dairy on public menus would have direct health and environmental benefits. The NHS has also said that procuring less meat for patients could save 18,000 lives a year.[169]

30. The Government should commit to assessing the impact of meat, dairy and eggs bought with taxpayers' money. It should ensure that all livestock products (meat, dairy, poultry products) procured publicly do not damage biodiversity, and address carbon reduction targets and support local sustainable livestock production such as organic where possible. This should affect meals in the government estate, in local and national government, schools, hospitals, care homes, and other publicly funded food service and the armed forces. This will inevitably require a reduced reliance on cheaply procured meat and dairy processed products and an emphasis on local quality produce, such as grass fed meat. This would provide health, environmental as well as local economic benefits.

31. It should also include changes to menus, and education and awareness-raising schemes to encompass a change in overall consumption and the use of measures such as standard-setting and best practice, skills development in the procurement sector.

5 May 2011

Written evidence submitted by New Britain Palm Oil Limited

1. About NBPOL

(i) NBPOL is a large-scale integrated industrial producer of sustainable palm oil in Australasia, headquartered in Papua New Guinea (PNG). It now has over 75,000 hectares of planted oil palm plantations, a further 5,000 hectares under preparation for oil palm, over 8,000 hectares of sugar cane and a further 9,500 hectares of grazing pasture (some of which will be converted to oil palm); 11 oil mills; two refineries, one in PNG, and one in Liverpool, UK; and a seed production and plant breeding facility.

(ii) The Company is quoted on both the Main Market of the London Stock Exchange and on the Port Moresby Stock Exchange in PNG.

(iii) NBPOL is fully vertically integrated, producing its own seed (which it also sells globally) and planting, cultivating and harvesting its own land and processing and refining palm oil (both in PNG and the UK).

(iv) It also contracts directly with its end customers in the EU and arranges shipping of its products.

(v) NBPOL has high regard for the importance of its sustainability credentials and is active in proving its performance through its certification to ISO 14001 and its close involvement and support of the Roundtable on Sustainable Palm Oil (RSPO).

(vi) The Company is a certified supplier of sustainable palm oil from the entire production base in West New Britain Province, at Ramu in PNG, and its entire Solomon Islands estates, under the RSPO guidelines.

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[166] Approximately 35% of total average weekly household spend is on meat and dairy products (£16.60 of £46.09) http://www.statistics.gov.uk/downloads/theme_social/Family_Spending_2006/FamilySpending2007_web.pdf

[167] Sustain (2009) A decade of hospital food failure.

[168] Deloitte (2009) Public Sector Food Procurement Initiative: An Evaluation: http://www.defra.gov.uk/foodfarm/policy/publicsectorfood/documents/090311-PSFPI-%20evaluation.pdf

[169] Annual Report of the Chief Medical Officer (2009) On the state of public health.

2. The Importance of High Quality, Affordable, Segregated Sustainable Palm Oil to the UK Food Industry

(i) Palm oil has become an essential resource for the food, personal care, oleo-chemical and bio-diesel sectors and is used in one in 10 products found in the supermarket such as: biscuits, confectionary and baked products, soaps, detergents and cosmetics. As demand for palm oil has grown and the industry has expanded, the sustainability of the product is becoming an increasingly important issue, which must be addressed by the UK food industry.

(ii) NBPOL seeks to provide the UK food industry with fully segregated and traceable, RSPO certified sustainable palm oil which is produced in an affordable manner. NBPOL uses only palm oil that can be traced back to RPSO certified sustainable origins, which we feel is a critical step towards mainstream sustainable palm oil use in the UK.

(iii) We are passionate in our belief that the world must produce palm oil in a more sustainable way. If we are to continue to provide the world's population with affordable food that does not have detrimental impacts on tropical rainforests, the habitats of endangered species and the livelihoods of people dependent on those rainforests, then sustainable practices must be embraced.

(iv) We are determined to make fully segregated, traceable and certified sustainable palm oil mainstream for the UK food industry in as many ingredients and formats as possible and so we make it affordable to them. We clearly believe in the importance of safeguarding this financial connectivity and its critical role in delivering a more sustainable industry. As a result, we have committed to invest more than £30 million in making traceable, sustainable palm oil available to the UK food industry at the same price it would normally pay for non-sustainable oils.

3. Yield Growth Over Extra Planting—Helping to Keep Production Sustainable

(i) We firmly believe that the palm oil industry simply must meet the growth challenge through improvements to palm oil yields—both on estates and among smallholders and not by additional planting on critical wetlands and high conservation value forests as it has done in the past (and still threatens to do).

4. Increasing Transparency to Allow Consumers to Choose the Sustainable Option

(i) In order for the UK to properly benefit from traceable, sustainable palm oil, it is first necessary for consumers to understand the difference between it and the non-sustainable product and to be able to identify accurately which is which.

(ii) In the same way that products contain information about the nutritional value of their constituents and many give details about their origins, a system should be introduced so products containing palm oil should declare the fact and should also give accurate information on sustainability of the palm oil which is included in the product. Such a system, working in a similar manner to "dolphin friendly tuna", would enable consumers to make positive informed choices and thus promote the uptake of sustainable palm oil and encourage food producers to only use sources which are environmentally friendly and responsible. Such labelling should not be optional but should be included on all food packaging in the UK. Clear details should also be given on supermarket shelves to ensure consumers understand the significance of the new labelling.

(iii) We believe that equally important to clear labelling and information on products is the restriction of mis-information which confuses the consumer.

(iv) GreenPalm Certificates are used by many companies in the UK to claim "support" for sustainable palm oil. However, these certificates do not indicate that products in question contain palm oil from sustainable sources. Such certificates are akin to offset certificates, meaning that companies pay a support fee to a sustainable grower, while continuing to buy their oil from any non-sustainable source. While they are endorsed by the RSPO, such certificates serve to confuse consumers and potentially restrict their ability to choose products that are truly sustainable.

(v) Today some well-known consumer goods/food companies are making public statements about the palm they purchase; suggesting half of it is from sustainable sources, when in reality they are simply purchasing GreenPalm Certificates and have little or no understanding as to the sustainability of the palm oil they are using because they cannot trace it back to individual plantations.

(vi) This creates a re-occurring cycle of non-sustainable purchasing and means that as consumer goods/food companies continue to source their oil from the untraceable commodity supply chain then it is most likely that their spending power will be going back to exactly the same kind of non-sustainable producers that they claim, by inference, not to support.

(vii) In this way, GreenPalm Certificates are not only not a true indication of sustainability, but also counterproductive both to sustainable producers and consumers interested in making informed sustainable purchases. We contend that GreenPalm Certificates are simply a cheap way for companies to claim support for sustainability while doing nothing different to what they have done in the past.

(viii) The idea and concept is predicated on the belief that traceable sustainable palm supply chains are impossible and prohibitively expensive, something that we, and others sustainable producers, have started to disprove by our practice.

(ix) Additionally, companies claiming "support" are not audited, nor are they needed to be audited about either the extent of their "support" or why they might only be buying certificates for a part of their overall palm oil use. The operators of the scheme are not audited or independently verified and the total amount of "support" is not transparent for anyone to see. The opportunity for making false or misleading claims is obvious and there is no mechanism in place to police such claims anyway.

(x) We believe that not only is this misleading consumers about what a company is doing in the name of sustainability, but it is undermining the cause of real and verifiable sustainable palm oil production. To us, the evidence is clear in that:

(a) Providing access to the UK's palm oil spending power ahead of a non-sustainable producer is incentive enough for a sustainable producer, however, the GreenPalm Book & Claim system is obstructing that from ever happening and we think the Government should act in preventing companies from claiming such obvious and false support for "sustainable agriculture".

(b) If this continues, sustainable palm oil will not become a reality, nearly every company's 2015 target to buy only sustainable palm oil will be missed, more rainforest will be needlessly destroyed and more time lost without concentrating more on yield improvements—no one can afford for all of this to happen.

5. Summary of the Problem with the Green Palm Supply Chain

(i) In summary, we believe GreenPalm Certificates are like buying a green claim on the cheap.

(ii) It misleads consumers as to the genuine impact of the product they are buying and has a detrimental effect on the truly certified sustainable palm oil suppliers.

(iii) Tangible impacts include:

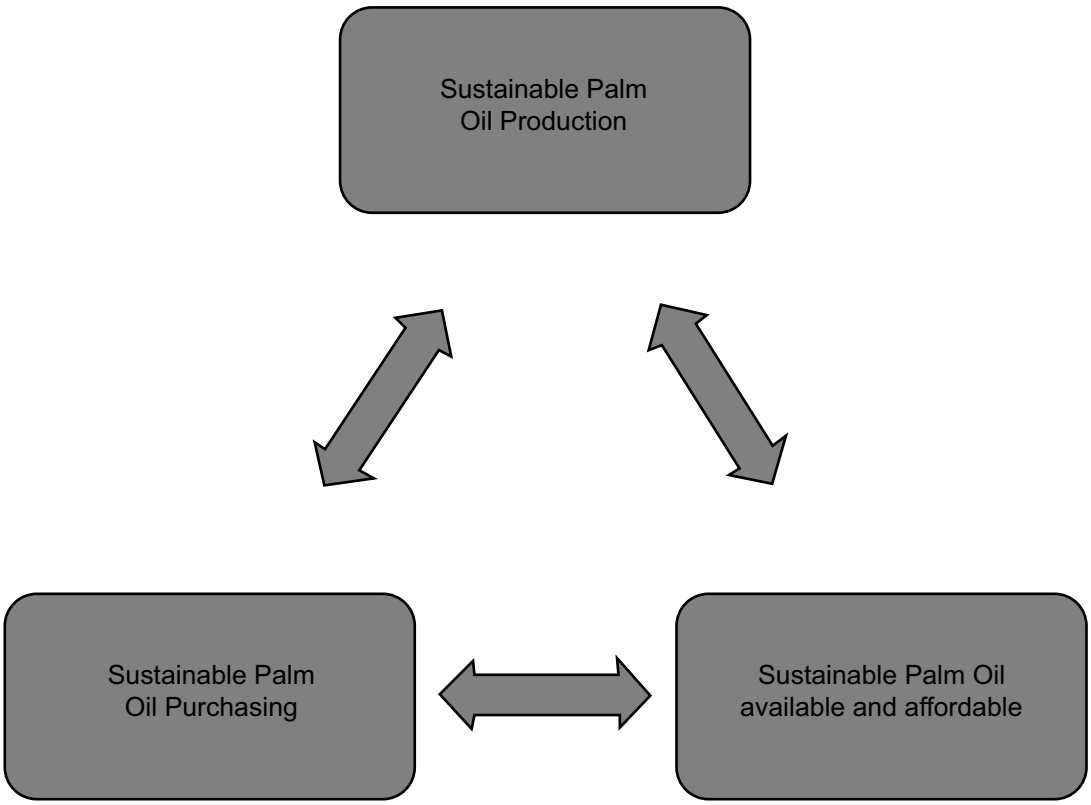
(a) The prevention of supply chain operators from providing and investing in low-cost traceable sustainable palm oil for our UK/EU consumers.

(b) It misdirects the flow of UK consumer's monies back to non-sustainable producers and the consumer is left wrongly believing that they are purchasing sustainably.

(c) It is sending the message to the governments, companies and smallholders of palm producing regions that European buyers are disingenuous in their attempts at sustainability. It further suggests we are more interested in appearances than actual impacts and achievements.

6. Conclusion—Creating a Positive Cycle of Sustainable Production

(i) We feel there is a need for the UK Government to promote more effectively this issue as well as to ensure companies are making accurate claims and not misleading consumers with respect to their palm oil use or their so-called support for sustainable production. As with any industry, for it to change its ways, there needs to be a tangible financial connection that links responsible production to consumers in wealthier economies like the UK that want their food to be produced more responsibly. If sustainable palm oil is wanted , is available and affordable then it will be both consumed and produced in ever increasing quantities. This financial link not only connects a sustainable supply chain, but even more importantly, it will lead to long lasting change because it excludes any financial benefit from going to non-sustainable producers.



7. Key Facts to Consider

(i) Although the amount of palm oil production certified against the sustainable standard has grown since 2008 (c 3 million tonnes), it has not grown as fast as overall world palm oil production (c 5 million tonnes!).

(ii) The industry is producing more non-sustainable palm now than it was in 2008 when the first operations were certified.

(iii) GreenPalm Certificates currently trade at $7.50/mt for 2011's palm oil crop but 2010's certificates last traded at only $0.25/mt (iv) Even despite such a low price, around 40% of sustainable palm oil went unbought or "un-supported".

(iv) The actual price of palm oil is over $1050/mt ex the plantation level.

(v) Many growers around the world are dismayed about the lack of demand for sustainable palm and how easy it is for companies to obtain a "green" claim for doing so little; the Indonesians have even set up their own standard (ISPO) because they are so disillusioned with the economics and benefits of going for RSPO certification.

(vi) We believe it is both inaccurate and misleading to consumers if companies buy a GreenPalm Certificate for $7.50 per tonne (let alone $0.25/mt) and claim they are "supporting" and, by inference, "promoting" sustainable palm production when they are still paying more than $1050/mt to a non-sustainable producer.

(vii) Parallels are often made in defence of this scheme in that it only operates like the carbon offset market in Europe. However, in addition to renewable production, carbon credits are created from taxing non renewable energy producers and energy intensive users. This and the UK ROC scheme for example, work very differently so as to ensure incentives are there but also that consumers are not being mislead. The GreenPalm system has no formal structure or checks in place to ensure a fair price is paid to "support" production.

5 May 2011

Written evidence submitted by Noel Russell, Manchester University

SUMMARY

This evidence is submitted by Dr Noel Russell, economist at the School of Social Sciences, University of Manchester, based on research work financed through the Rural Economy and Land Use programme (Project RES 224–25–095; Investigating the Potential Role of Sustainable Intensification in Agro-Ecological Systems) and subsequent academic publications. It aims to explain the concept of sustainable intensification, the alternative approaches to thinking about this idea and the practical implications of these approaches. It concludes by setting out what might be usefully learned from further research in this area:

— While the idea of sustainable intensification might provide a convenient motif for encapsulating and motivating adjustments to agricultural policy, it is important to ensure that the full scope of the concept is taken on board. There are a range of definitions for "sustainability" and "intensity" with consequences for the way in which the concept is understood and the policy implications that might be inferred.

— One important implication of these differences is the extent to which long run changes in technology contribute to a sustainable intensification process and whether changes in technology embodied in new equipment and/or new varieties and animal species are seen as part of the process.

— While there is scope for increasing yields through increasing variable inputs alone, this will require an increase in fertilizers and chemicals and is likely to result in ecological damage. This raises questions about extent to which compensating increases in ecosystem conservation investment may be required to ensure sustainability.

— Pursuing the longer run approach to sustainable intensification by promoting higher yielding crop varieties raises questions about the extent to which genetic modification should contribute to developing these varieties including questions about marketability of the resulting produce and the impacts this may have on farmer profitability and incentives.

— However, irrespective of the definitions adopted it remains clear that there are many gaps in knowledge and information that remain to be filled with suitably designed and funded research.

BACKGROUND AND HISTORY

The concept of sustainable intensification emerged in the economics literature on sustainable food production in the mid-1990s although the elements of the idea were already part of the received wisdom for a number of decades. The principal concerns were focused on our collective ability to securely and sustainably feed a growing and increasingly affluent population from a fixed or declining area of land while conserving or improving the ability of our ecosystems to provide the services necessary for sustainable food production and for the provision of many other regulatory and cultural services to the wider economy and society. In the short-run, and in the absence of any major technological advance that increased inherent productivity of the land, the only option was to increase the intensity of input use without compromising sustainable food production. This is what was originally termed sustainable intensification.

More recently the idea has been expanded to encompass any activities that increase the productivity of land without impairing the ecological integrity of farming activities. In particular increases in yield derived from the development of new varieties, originally excluded, are now regarded by many as the essential component of sustainable intensification.

SUSTAINABILITY, INTENSIFICATION AND IMPLICATIONS FOR AGRICULTURAL AND ENVIRONMENTAL POLICY

In the case of agricultural production some confusion about the meaning and implications of sustainable intensification has arisen from alternative views about what we mean by "sustainability" and what we mean by "intensification" in this context.

The many alternative notions of sustainability may be classified into those that primarily rely on economic concepts and those that rely on ecological concepts. Those that rely on "economic" concepts are generally based on some notion of continuity into the future and tend to support definitions based on constancy or increase over time in production capacity, consumption of goods and services, or ultimately human wellbeing. Measures suggested by these definitions often focus on the economy's capital base as a reflection of production capacity giving rise to indicators that refer to "genuine investment" or "inclusive investment". These suggest that appropriate responses to increasing population and affluence could include; (a) policies to encourage investment in the capital base including educational investment to enhance human capital; (b) policies to reduce the ecological impact of production processes including support for technological changes that increase the productivity of (and thus reduce the need for) natural resources; and (c) policies to reduce the ecological impact of consumption.

Definitions based on "ecological" concepts of sustainability focus on the notion of conserving or enhancing "resilience" of ecological systems so that the ecological services needed to support economic and human activities can be maintained in the face of unpredictable but inevitable shocks to the underlying physical and biological systems arising from physical, biological and human processes. The focus here is on the continuing physical, biological and human activities that threaten to undermine this resilience; the measures suggested by

this approach involve providing a range of indicators for the extent and ecological impact of these activities while the suggested policy responses are based on reducing the extent and impact of individual activities using appropriate mechanisms that can include direct prohibition as well as financial inducements. Particular attention is recommended for impacts that may be approaching a threshold beyond which ecological damage becomes irreversible.

Definitions of "intensification" can similarly be classified into those traditionally used by economists on the one hand and those that are based more broadly on concepts used by agriculturalists, geographers and ecologists on the other.

The economists' notion of "intensity" is based on measuring input use per unit of land or other fixed input such as labour or capital equipment and is distinguished from the notion of "productivity" which measures the output generated per unit fixed or variable input. In this context "agricultural intensification" involves increasing the use of inputs per hectare and this may arise as a result of bringing previously uncultivated land into cultivation or increasing the use of labour, equipment, chemicals or other inputs on land already being cultivated. Economists tend to focus on changes that are immediately implementable by pointing to changes in variable inputs, such as chemicals, fertilizers and use of available equipment, that are feasible in the short run. These are distinguished from changes that might involve adjustments to the production process that are feasible only in the longer run, such as introducing novel materials and equipment or new and more productive crop varieties. This implies that the search for sustainable intensification in the short run becomes a search for ways to increase variable inputs (and output) per hectare without compromising the integrity of the ecosystem within which production is embedded. It has been pointed out (Licker *et al*, 2010) that while there is significant scope for increasing yields using current production systems and crop varieties in many parts of the world, these increases are unlikely to be achieved without increases in fertilizers and chemicals that may involve unavoidable ecosystem damage. In these circumstances sustainable intensification can only be achieved in aggregate, and only if there are simultaneous compensating increases in conservation investments in these ecosystems.

A much broader view of intensification is adopted by agriculturalists, geographers and ecologists; any increase in inputs per hectare is regarded as intensification and also any increase in output per hectare whether or not it is accompanied by an increase in inputs. This latter will include any increased output per hectare arising from changing the production process by introducing novel equipment and/or crop varieties without changing the level of physical inputs used. In some cases the increase in value of output, arising from price changes or a reorganisation of production to increase emphasis on more valuable products, is also counted as intensification. According to these views, sustainable intensification can involve increase in material inputs as above, and can also involve a longer term process in which yields are increased through the development and introduction of new crop varieties or through other innovations involving novel equipment and production processes. In these cases also it may be necessary to consider whether there is ecosystem damage that needs to be compensated by appropriate increases in ecosystem investment.

An important implication for policy makers hinges around the question of how to provide incentives to food producers to adopt a "sustainable intensification" approach in responding to the need to increase food production. This was addressed in an early study of African agriculture (Reardon, 1995). The recommendations in this study (although focused on African agriculture) point to the importance of information availability and financial incentives in the adjustment of agricultural production processes. In the UK context, as a starting point, this would imply a need for information and advice about appropriate production processes for sustainable intensification, and appropriate financial incentives for their adoption, particularly for those elements that require increases in ecological conservation. More recent research (Omer *et al*., 2010) has highlighted an important distinction in the types of incentive that may be relevant in these circumstances. The study begins by noting that ecosystem conservation can have positive feedback effects on yields through the contribution of regulatory and supporting ecosystem services to agricultural production and that this can provide an incentive for producers to undertake some ecosystem conservation activities. Using a stylised theoretical model the study goes on to show that in these circumstances part of the proceeds from the yield increase achieved through intensification is used to finance increased conservation activities, and in some circumstances this on its own is sufficient to support sustainable intensification as ecosystem quality, material input use and production increase on the same area of land. However the study did not go on to show how these circumstances might be harnessed to contribute to sustainable intensification in a UK setting.

Knowledge Gaps and Potentially Useful Research Areas

While the links between biological, material and chemical inputs and agricultural production have been researched over many decades and are relatively well known, there remain some gaps in our knowledge of the extent to which the potential productivity of these inputs has been fully exploited. For example a recent study (Licker *et al*, 2010) noted that many cropping systems worldwide are achieving only 40% to 60% of their potential yield even after controlling for differences in biophysical influences such as climate, though the yield gap was much lower in developed countries. Further empirical research on the extent of this "yield gap", how it might be changing in different ecosystems, and how it might be sustainably exploited, would be an important baseline parameter for decisions about how to set up and manage a programme of global sustainable intensification.

More detailed ecological and agricultural investigation is also needed about how ecosystem services are generated and how agricultural inputs interfere with these services. An important aspect of this problem is the need for information on how new technologies and new crop varieties interact with ecosystem services, especially in the case of new varieties that are developed using genetic engineering techniques.

Finally there is a need for information to guide decisions about designing appropriate systems of incentives for farming activities that support sustainable intensification and the extent to which these incentives might be provided "endogenously" by the positive impact of ecosystem services on production. The marketability of crops based on genetically modified varieties could have an important influence on these incentives.

Summary and Conclusions

While the idea of sustainable intensification might provide a convenient motif for encapsulating and motivating adjustments to agricultural policy, it is important to ensure that the full scope of the concept is taken on board. In particular it must be recognised that there are a range of definitions both for "sustainability" and for "intensity" that have important consequences for the way in which the concept is understood and for the policy implications that might be inferred. The main implications of these differences in definition is the extent to which long run changes in technology may be seen to contribute to a sustainable intensification process and in particular whether changes in technology embodied in new equipment and/or new varieties and animal species are seen as part of the process. The extent to which compensating increases in ecosystem conservation investment may be required to ensure sustainability of the process may also hinge on these differences. However, irrespective of the definitions adopted it remains clear that there are many gaps in knowledge and information that remain to be filled with suitably designed and funded research.

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14 June 2011

Written evidence submitted by Waitrose

Waitrose and Sustainable Development

— We have a *sustainable construction framework*—a checklist of criteria we must consider before starting a new building project; this ranges from using certified timber to maintaining the biodiversity of an area.

— We have a target for a *BREEAM* (Building Research Establishment Environmental Assessment Method) excellent rating for new build stores. This looks at the energy performance of every aspect of a building—from the materials used in the roof to the materials used in the floor. Our new branch at Westfield Stratford will have an "outstanding" rating as we will use Westfield's on-site energy centre to power the branch.

— We will shortly become the first retailer to operate its own *energy centre* to meet all of our branches' electricity, heating and cooling requirements as well as making surplus energy available to the local community when available. The first centre will open in the Isle of Wight in December followed by Bracknell in early 2012. Our aspiration is to deliver 150 energy centres over the next 10 years.

— We have reduced the carbon footprint of our branches by up to 69% through the development of a *new refrigeration system* and our sustainable construction practices.

— The John Lewis Partnership has set an *absolute carbon reduction target*, committing us to a reduction in operational CO_2 equivalent emissions by 15%, against a 2010–11 baseline. We have a programme of investment to achieve this which includes using gas as road fuel (subject to the Government's commitment to advancing and incentivising the use of gas as road fuel) and diverting more waste from landfill (local authorities only collecting residential waste currently presents a challenge).

— We believe that the *National Planning Policy Framework* should foster genuine sustainable growth. As well as this, we believe it should support a Town Centres First policy and the Competition Test. This would secure the future vibrancy of the nation's town centres and mean that the planning process would consider competition in the local area when assessing supermarkets' applications for sites.

SUSTAINABLE FOOD PRODUCTION

— We invest a great deal of effort into working with our suppliers to enhance food security. At Leckford this includes our commitment to integrated farm management though our partnerships with the Farming *and Wildcare Advisory Group* (FWAG) and LEAF (*Linking Environment and Farming*).

— The halt of the *Higher Level Scheme* (HLS) for farmers has presented a significant investment challenge to our farmers and affects the future viability of FWAG. This presents a significant threat to developments in sustainable production.

— On fresh produce we are currently undergoing a *Farm Risk Assessment* which will assess the impact our strategies are having on the environment.

— We have been through a similar process with Livestock and have identified a number of environmental risks that we will address. This has resulted in an *action plan* of environmental initiatives that have been developed with FWAG. They include carbon calculators, biodiversity questionnaires and a study on the use of solar energy on farms.

— We are currently involved in a three-year *eco Pig Project* to reduce the environmental impact of outdoor pig production. We have hit a number of the Project's targets 18 months in and these are mostly in the areas of production and application of feed. For example all the feed at a Duchy Originals from Waitrose pig farm is leading a ground-breaking initiative to feed pigs from feed grown within 50 miles of the farm.

— Our *WildCare* scheme encourages the 60 members of the Waitrose dairy farmer pool to adopt farming practices that significantly improve conditions for wildlife across the UK. The scheme sets out environmental standards that will improve wildlife habitats, increase biodiversity and the numbers of species on each of the farms producing milk for Waitrose. WildCare's principle focus is to create "wildlife corridors" through the careful management of hedgerows, ditches, water courses and field margins, providing the necessary habitats for many species of plants, insects, birds and mammals to thrive. Participating farmers dedicate a minimum of 10% of their dairy farm area as wildlife habitat. There are many examples of the Wildcare scheme at Leckford and the farm is in the final for the Wildcare Farmer of the Year award.

CENTRE OF EXCELLENCE FOR UK FARMING (CEUKF)

— Waitrose joined forces with the Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth University and the National Institute of Agricultural Botany (NIAB), in Cambridge to develop the Centre of Excellence for UK Farming (CEUKF).

— The centre—launched in February 2011—will provide a *network of expertise* to help ensure that the best information and advice on developments in science, innovation and practical know-how are accessible to provide real benefits across the supply chain.

— At the core of the CEUKF is the concept of *Sustainable Efficient Production*. This implies production of food and other agricultural products which at the same time meets both the needs for quantitative and qualitative supply, while minimising negative impacts on the environment and on the availability of resources.

— The Centre's aim is to promote and highlight *research and knowledge* on improving sustainability while increasing output in farming and food production.

— The centre believes one key target should be the development of *accessible, easy-to-use tools* and indicators to allow farmers and food supply chains to adopt optimum practices and benchmark their achievements. To this end they are developing a Sustainable Efficient Production index, SEPi.

— In five years' time, the Centre aims to have created a cluster of retailers, researchers and other delivery and beneficiary partners, who share a common vision: "to ensure the UK is the best place to grow safe and nutritious food in the presence of climate change and other sustainability issues".

FOOD WASTE

— Our aim is to divert all our food waste from landfill by the end of 2012. We will achieve this using a variety of methods including *Anaerobic Digestion* (AD) and *charitable donations*.

— We are committed to reducing food waste in a way that is beneficial to the environment and the communities we trade in.

— Our AD scheme *recycles food waste* from over half of our estate into energy to power vehicles or provide electricity.

— Later this year we will launch a *Branch Environmental Portal* that will monitor key environmental measures at a local level. Amongst other vital information, this will give our branch managers full transparency of the food waste their branch is generating.

— It is a significant commercial and environmental priority for us to eliminate food waste. We therefore invest a great deal of resource into *accurate forecasting*. This includes monitoring the weather which has a significant impact on customer demand and therefore waste.

— As regards distribution and storage, we have a *just-in-time policy* for our fresh produce. This means that all fresh produce is sent to branches as soon as it arrives at our distribution centre. We also control and manage the temperature right across our distribution and storage processes to maximise the life of our produce.

— Most of our food waste is unavoidable, for example packaging damage can make food unfit for sale/consumption. Our aim is to dispose of this unavoidable waste in the most environmentally friendly way.

— An important part of our food waste policy is based on a local basis. If our branch managers can find a viable solution that meets the needs of a local charity and our operations, they will establish a process for donations. Examples included support for Food Bank and Fare Cycle. We also donate food waste to charitable animal organisations such as the Welsh Mountain Zoo.

21 September 2011

Written evidence submitted by the Director of Catering and Retail Services, House of Commons

INTRODUCTION

1. The House of Commons Catering and Retail Service (CRS) welcomes this opportunity to contribute to the Environmental Audit Committee's inquiry into sustainable food. Before providing information on the specific points raised by the Committee in its letter of 24 October to the Office of the Chief Executive of the House of Commons, as head of the House of Commons in-house catering service, I would like to share a few observations borne out of many years experience of trying to promote sustainable food procurement within the catering profession and, most recently, within a public sector organisation.

2. Firstly, I would draw the Committee's attention to the nature of the food supply chain into the catering and hospitality market. Typically, this consists of a large number of small, independent suppliers, operating over local distribution networks and often without the resources or the buying-power to compete against the major supermarkets that dominate the retail market. This often makes it difficult for the caterer wishing to implement a sustainable procurement policy to do so economically unless the scale of their business is either small enough to be able to source their requirements from small, local producers and artisans, or large enough to drive the buying policies of the main wholesalers serving the catering market.

3. Secondly, the House of Commons is subject to the EU Procurement Regulations. This means that it must formally advertise and let the vast majority of its food supply contracts in accordance with the strictures of the formal procedures and timescales laid down in that legislation. However, many small, entrepreneurial suppliers in the catering market are not well resourced or skilled to participate in formal tendering processes and prefer to develop their business by building relationships with potential customers. This can result in some of the supply chain most committed to food sustainability choosing not to bid for supply contracts. Furthermore, companies and entrepreneurs who emerge as new leaders in areas of sustainable food initiatives cannot compete for supply until the contract is next tendered. This imposes a degree of inflexibility that is unwelcome in an area where the agenda is significantly driven by consumer demand.

4. Lastly, we recognise that we have a responsibility as the provider of meals in the workplace to help our customers make informed choices about the foods they are buying in our restaurants. But as a small catering organisation employing less than 300 staff, it is difficult to keep our management, chefs and procurement staff up to date with food sustainability issues and initiatives. A single source of clear, practical advice could help signpost the way to more detailed and in-depth advice or information, and would be invaluable as a portal for educating both staff and customers about the issues and choices that exist.

5. The remainder of this evidence sets out the information specifically requested by the Committee.

SUSTAINABLE PROCUREMENT POLICY

6. The House of Commons Catering and Retail Service (CRS) recognise its responsibility to carry out its procurement activities in an environmentally and socially responsible manner and created a Sustainable Procurement Policy in 2009. The policy sought to work within the guidelines set out by the Public Sector Food Procurement Initiative (PSFPI) and in doing so endeavoured to contribute to the Government's Sustainable Farming and Food Strategy (SFFS). The policy contained reference to measurement against government targets (PSFPI). PSFPI was superseded by Defra's Government Buying Standards in September 2011. Performance has not been monitored.

7. Invitations to tender for supply of goods to CRS currently contain the following criteria:

> "The Contractor shall perform the Contract in accordance with an environmental policy that aims to conserve energy, water, wood, paper and other resources, reduce waste and phase out the use of ozone depleting substances and minimise the release of greenhouse gases, volatile organic compounds and other substances damaging to health and the environment".

8. Regarding food contracts specifically, the Commercial Services Directorate, part of the Department of Finance and with corporate responsibility for procurement for the House, are planning to create a new document to add to the standard suite of tender documents which will be applied to food contracts. This will cover the

current Government Buying Standards for food (in relation to which the House of Commons is not obliged to comply),which includes sustainability standards covering issues such as:

- food produced to higher environmental standards;
- fish from sustainable sources;
- seasonal fresh food;
- animal welfare; and
- ethical trading considerations.

9. For a number of years, CRS have worked towards managing out of their food supply chain all fish listed as "to avoid" in the Marine Conservation Society's "Good Fish Guide". CRS has recently strengthened this by committing to the "Sustainable Fish City Pledge", a campaign coordinated by Sustain and supported by the Good Catch Initiative, the Marine Conservation Society, the Marine Stewardship Council, Seafood Choices Alliance and other organisations. This pledge is a promise to take appropriate steps to buy sustainable seafood, to protect precious marine environments and fish stocks, and preserve good fishing livelihoods.

10. In addition to formalising our pledge that all future menu development will not feature fish on the "Avoid" list of the Good Fish Guide, the pledge requires CRS to:

- develop and implement a formal policy on seafood sustainability in our business;
- assess and monitor the environmental sustainability of the seafood we serve;
- make sustainable seafood choices by removing endangered species from all menus, promote sustainably managed fish to our customers, and tell our suppliers that we want to serve only sustainable fish;
- communicate this policy clearly to our customers, suppliers and key stakeholders; and
- help influence wider progress by using our influence to encourage others to make the same commitment.

Minimising Food Waste

11. CRS take the following actions to minimise food waste:

- Wastage is monitored: any food that is wasted due to it being unable to be re-used or sold, or which is damaged or unfit for consumption is recorded on wastage sheets. Monthly stock takes are carried out and anomalies investigated.
- Production volumes are planned with recourse to anticipated levels of business:
  - CRS work closely with the Main Party Whips to forecast levels of business;
  - Duty Managers report on evening business;
  - Sales history is extrapolated from the Electronic Point of Sale (EPoS) System;
  - Purchasing and product consumption history is provided by a computerised stock management system; and
  - Cafeteria menu cycles run twice before being changed. Popularity of dishes is reviewed after the first run and changes to volumes made where necessary. A planning, production and control sheet highlights anomalies in production and sales.
- Adherence to food handling procedures minimises waste through correct storage of products. Food handlers are trained in Food Safety and the operation is subject to an annual independent audit, plus regular inspection by Westminster Council's Environmental Health Officers. Food is clearly labelled using a bespoke labelling system and stock is rotated as part of standard business procedure.
- Surpluses and short date products are transferred between outlets to maximise the possibility of using the products.
- A dedicated butcher is employed in the kitchen brigade. Whole joints are purchased for use in some areas, promoting economic and efficient utilisation of fresh meat cuts by allowing trimmings to be used in other dishes.
- Some outlets have self-serve facilities (breakfast items, vegetables, salad bars). This allows customers to choose their own portion sizes.
- The purchase of prepared vegetables allows for trimming waste to be managed in bulk further up the supply chain.
- Services for which there is minimal demand are provisioned by small packs, frozen products or other convenience products.
- There is a bicameral arrangement in place for the recycling of waste cooking oil. The supplier removes waste oil free of charge, then converts it to bio diesel to run their transport fleet.
- There is agreement to pursue a food waste composting pilot in the New Year as part of the recently negotiated House waste collection contract. The pilot will inform plans to extend this service across the Estate.

Use of Powdered Egg

12. CRS do not procure powdered egg. CRS purchase only organic, free range, lion coded & date stamped whole eggs. Additional information from the nominated egg supplier is set out below:

> "We have centred the supply chain on a cooperative of 28 farmers who operate outside of the grip of major retailers. Our products are Organic (Soil Association and Organic Food Federation), Free Range lion coded and Barn egg lion coded in medium, large or extra large sizes and either on catering trays or retail pre-packs, all under the Liberty Egg brand which you will only find in other independent outlets. Eggs are graded and packed in the cooperative's own packing station, operated by the Elliott family with every step of production and dispatch supervised by them. The packing station is Lion approved and organic certified and only eggs from within the cooperative are graded there leading to a guarantee of absolute traceability and accountability".

13. In addition to whole eggs, CRS purchase pasteurised liquid egg products. The Cocovite brand currently supplied is produced in Belgium. The supplier has confirmed that their eggs come from enriched cage supplies, in accordance with the European legislation on enriched cages which take effect in 2012. It is anticipated that the imported products will increase in cost in the New Year and supply will then be reviewed again in light of these changes.

Bottled Water

14. A review in 2009 concluded that the current method of supplying water to Committee Rooms provided the best cost/environmental impact balance.[170] An updated review is currently being prepared for consideration by the Administration Committee.

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[170] http://www.parliament.uk/site-information/foi/foi-responses/foi-disclosures-2011/foi-disclosures-july—september-2011/select-committee-expenditure-on-water/