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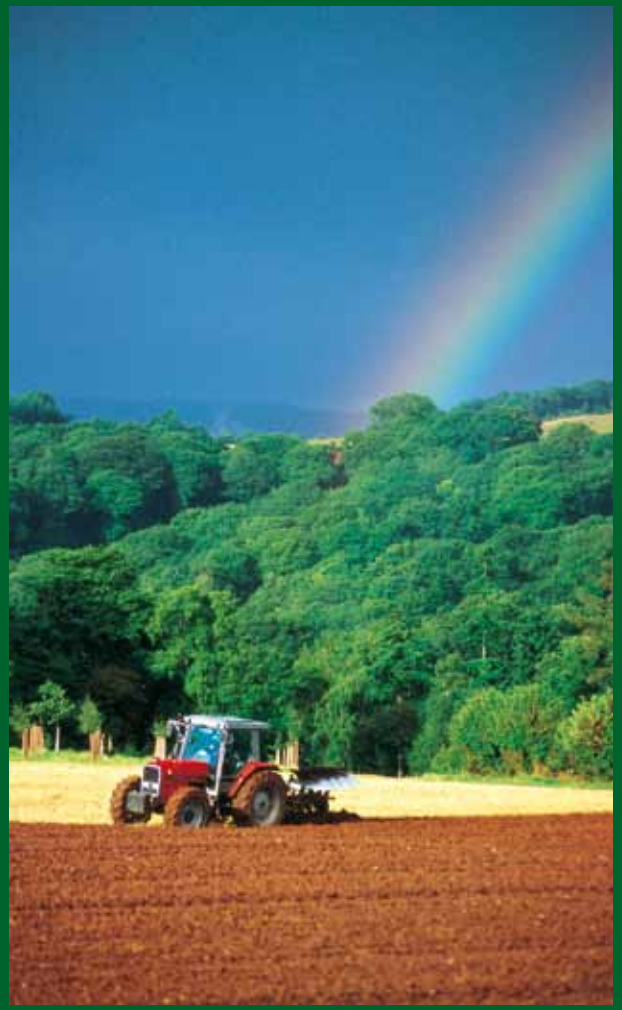

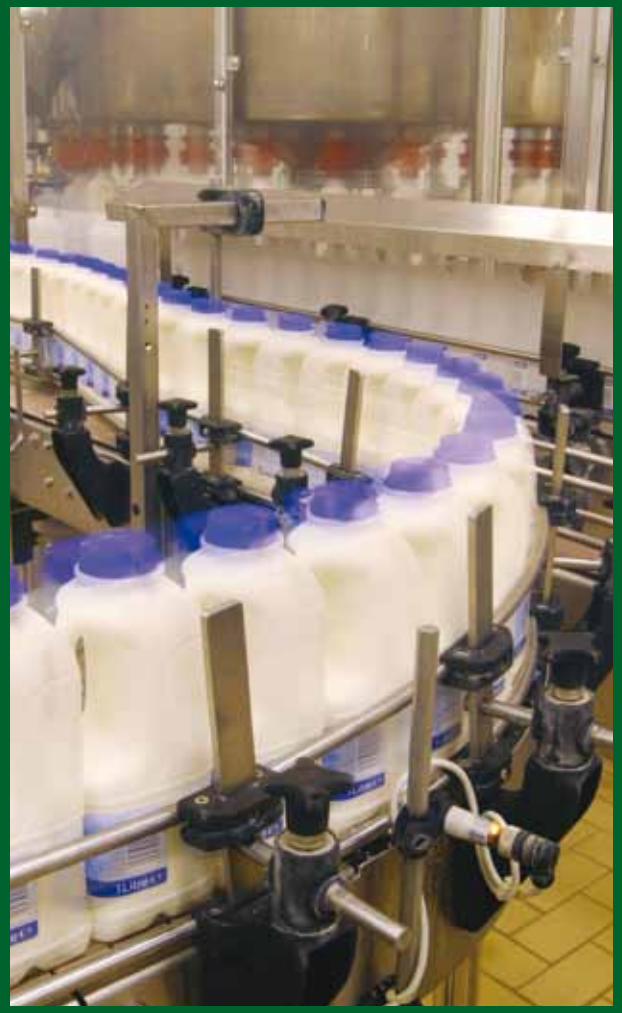

THE RECOVERY: WHY FARMING MATTERS

WHY FARMING MATTERS

www.whyfarmingmatters.co.uk

NFU

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CONTENTS

FOREWORD

PETER KENDALL

The most serious financial crisis since the Great Depression is a reminder to policy makers to look beyond London's Square Mile and to Britain's thousands of square miles of farmland. They not only feed our population but can also fuel our cars and help power the national grid. They provide the landscapes that bring tourists to the countryside and the trees, plants and flowers that enrich our cities. In short, we ignore farming's potential at our peril.

It is now four years since the NFU launched its first Why Farming Matters campaign.

The original campaign challenged what had become almost the accepted wisdom: that agricultural production was, at best, a rather inconvenient by-product of land and countryside management. Food security was not an issue for Britain; we were a trading nation and our agricultural production would be dictated by market forces.

A lot has happened since 2006 to bring the strategic and economic value of agriculture back onto centre stage:-

- the extraordinary food price spikes of 2007/08 gave rise to real anxiety around the world about future food security and saw at least 31 countries impose some kind of export restrictions;
- the sheer scale of the 21st century's food production challenge has become clear: the world needs an increase in food production of at least 70% by 2050;
- we have seen hugely ambitious, mandatory targets set for carbon reduction and renewable energy which will require an enormous contribution from land-based sectors;
- finally, we have lived through the biggest financial crisis since the 1930s. The Coalition Government that was formed after the General Election in May 2010 is committed to a drastic reduction in the country's budget deficit. This inevitably means a major scaling back in the role of government, so industry initiatives will be all the more important. At the same time, the 'green economy' and manufacturing industries (including food and drink, the country's largest manufacturing sector) will be the engines which pull our economy back into recovery.

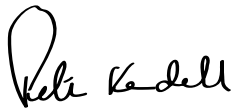
That is why farming matters.

The public thinks so too...

The message that farming matters has struck a chord with the general public. We regularly survey attitudes to farmers and farming and this year 86% of the public agrees that farming will become increasingly important in the years to come and that food security is a crucial issue. 75% now describe their view of farmers as favourable or very favourable, compared to 68% in 2005. And a huge 96.1% said that growing quality food is the most important thing that farmers do.

And the environment matters...

Some people think farmers are set to return to an all-out race for production without concern for the environment. Nothing could be further from the truth. Our slogan is "produce more, impact less" and this report lays out just how we can do that and add value at the same time.



Peter Kendall
President


FACT: THE RURAL
ECONOMY IS WORTH
£300 BILLION EACH YEAR
AND EMPLOYS
5.5 MILLION PEOPLE

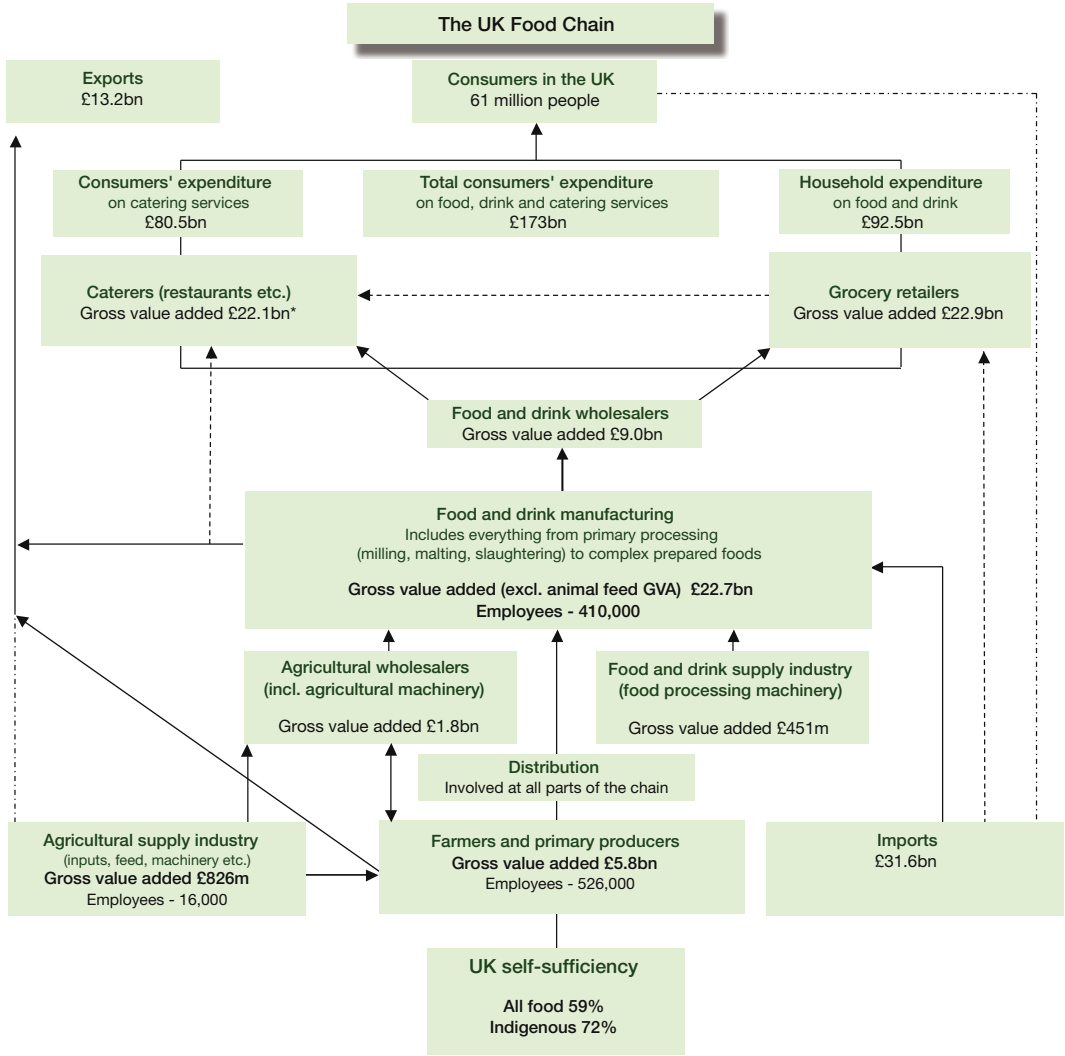
THE RECOVERY: WHY FARMING MATTERS

THE ECONOMIC VALUE OF FARMING

Farming is a major industry. It responds to the shifting needs of the market, embraces innovation and, by using over three-quarters of the UK land area, shapes our natural environment. Farms across the length and breadth of the country are the starting point for the majority of food that ends up in our shopping baskets and on our plates. Collectively, agriculture and horticulture contribute some £7.1bn to the Gross Value Added[1] (GVA) of the UK economy.

Agriculture was one of the few strong sectors as the economy headed towards recession. Following tighter global supply of several agricultural commodities and subsequent price spikes, total farm income increased to £4.4bn in 2008. Farm incomes remained relatively stable in 2009 at £4.1bn[2], more than double the low point of a decade ago. The strong performance of agriculture throughout the recession highlighted the long-term investment prospects of agriculture as capable of generating stable returns; a timely reminder that farming is good business and good for business.

While the solid performance of agriculture has been good news for the whole economy, it has been particularly critical to rural areas. The rural economy turns over £300bn each year, employs 5.5 million people and has farming at its centre.



* Gross Value Added (GVA) is the difference between the value of goods and services provided and the cost of raw materials and other inputs used up in production.

Source: Defra, Agriculture in the UK 2009

THE RECOVERY: WHY FARMING MATTERS

THE ECONOMIC VALUE OF FARMING

Agriculture is a significant employer, with 534,000 people – or 1.7% of the total UK workforce – involved in primary agricultural production. Approximately 187,000 are employees while the remainder working in the sector are self-employed farmers, partners, directors and spouses. This structure makes farming unique, given that the majority of people working in the industry invest their personal assets into their businesses.

Although agriculture is regarded as an industry that values independence and tradition, such an unrivalled level of commitment to farm businesses also generates innovation and entrepreneurship. For example, some 51% of farms in England have diversified beyond their core farming activities[3].

Similarly, the productivity of UK agriculture has increased by 51% since 1973, reflecting UK farmers' willingness to embrace the latest developments in science, technology and management skills, and their capacity for innovation.

Farming and the food industry

Looking at the direct economic impact of agriculture only tells part of the story. To gain an understanding of the significance of UK farming, it is important to consider activities beyond the farmgate and look at the food chain as a whole. Collectively, the agri-food sector accounts for 6.7% of the total economy and generates some £85bn in GVA terms to the UK economy. In addition, an estimated 3.6 million people are employed, 14% of all employees[4]. Also, the UK food and drink industry accounts for approximately 5% of total UK exports, with some £14.3bn generated through overseas sales in 2009. Across the country, farmers increasingly collaborate with their supply chain partners. Although a complex number of factors influence UK agricultural outputs, not least the weather, long-term trading relationships and dedicated supply chains are becoming a feature of the UK agri-food sector.

At the consumer end of the food chain, UK farmers are also gaining recognition. According to the IGD, the credit crunch has awakened a form of food-patriotism among shoppers keen to support their local economy and this is expected to be long-lasting[5]. And if on-pack labelling and instore merchandising is anything to go by, mainstream retailers are recognising the demand for provenance and beginning to realise the marketing potential of their farmer suppliers.

The interdependence of the agri-food sector as a whole should not be undervalued. An efficient and viable farming base is critical for the UK food sector to ensure its long-term access to raw materials.

By demonstrating the vulnerability of the world economy, the credit crunch has awakened a form of food-patriotism among shoppers keen to support their economy. We expect this to be long lasting.

Tim Maton, Senior Consumer Analyst, IGD

Simple economics shape the structure and location of the food processing sector. Indeed, recent trends in energy costs have provided further focus to the economics of food production. Food processing sites tend to be located near to their supply base because agricultural outputs are bulky items that are relatively expensive to transport. This already occurs on a regional basis: whether it is the concentration of dairy processing in the west or vegetable processing in the eastern counties. If UK agriculture is not efficient and viable, processing capabilities would not just concentrate on a regional basis, but migrate overseas.

Agri-food sector's contribution to total economy GVA

Sector	£million
Agriculture	7,169
Food Manufacturing	22,751
Food Wholesaling	9,490
Food Retailing	22,925
Food Non-Residential Catering	22,121

Source: Defra, Agriculture in the UK 2009

Without a healthy farming base, there is a very real risk the £23bn that domestic food and drink manufacturing adds to the UK economy could be eroded. Beyond the economic rationale, increased reliance on global supplies could also raise questions concerning food safety, traceability and production standards.

The agricultural supply industry

The UK's diverse agricultural production base requires a range of specialist inputs. From animal feed manufacturers to veterinarians, the livelihoods of many providers of agricultural goods and services are dependent on continued demand from farmers. In total, the agricultural supply industry was estimated to generate £826 million GVA in 2009, and provided 16,000 jobs in over 1,200 businesses[6]. Typically, agricultural supply businesses are significant in their own right.

For example, UK farmers spent a total of £4.6bn on animal feed and fertiliser in 2009[7]. Although there tends to be a focus on the economic impact from 'field to fork', it should not be forgotten that these supply businesses are also significant contributors to the UK's rural economy. Many are also active, with the NFU, in the Campaign for the Farmed Environment (see p25) and in developing Agriculture's Greenhouse Gas Action Plan (p28).

THE RECOVERY: WHY FARMING MATTERS

THE ECONOMIC VALUE OF FARMING

Growing the energy market

Reliant on natural resources themselves, farmers are more aware than most of the challenges of limited resources and climate change. They also recognise that they can contribute to developing renewable energy markets and harness emerging technologies.

Like most renewable technologies, the UK biofuel market is developing quickly. One large bioethanol plant is already operating and another is under construction, with a combined potential to produce around 800 million litres of low carbon fuel from around 2 million tonnes of UK wheat. These plants not only contribute to reducing emissions in transport but also provide a valuable source of dried distillers grains, a co-product which can be used as protein feed for UK livestock. These co-products, as well as being a traceable, sustainable source of protein, will help reduce our reliance on imported protein crops such as soya from South America.

UK farmers, through schemes such as Red Tractor Farm Assurance, comply with high standards. These industry schemes have developed to adopt additional sustainability requirements to demonstrate compliance with biofuels legislation. UK feedstocks for biofuels have significantly outperformed other sources, showing 98% meet environmental standards under the Renewable Transport Fuels Obligation[8].

Areas of novel biomass crops (such as miscanthus or short rotation coppice) are set to increase steadily, from around 10,000 hectares today to as much as 350,000 hectares by 2020. Technology availability and improved prices (for both small-scale combined heat and power plants and large-scale electricity generation), together with rising energy costs, have combined to make energy from biomass feasible. Rural and agricultural businesses, with their access to land to grow biomass crops, have been at the forefront of technology uptake.

Biogas, often referred to as Anaerobic Digestion (AD), is another emerging energy market. Already an established energy resource in some parts of Europe, UK farmers are beginning to respond to government incentives through the Renewables Obligation and the Feed-In Tariffs. AD offers multiple environmental benefits, including improved nutrient management and protection of watercourses, as well as greenhouse gas abatement and supply of low-carbon energy. The NFU instigated the widely-shared national aspiration for 1,000 AD plants on farms by the year 2020.

With 77% of UK national land area in our sector, and an abundance of land-based renewable energy technologies at our disposal, it is the NFU's aim that every farmer and grower should have the opportunity to become an exporter of low-carbon energy.

We need to rebalance the economy…creating opportunities which are spread more across the regions and through those sectors where the UK is strong and can add real value.

Vince Cable, Secretary of State for Business, Innovation and Skills

One view that is sometimes heard is that the depletion of fossil fuel will force radical changes in agriculture in the near future. Farming has, in fact, an excellent record of investment in energy efficiency, a trend that is set to continue in response to regulatory measures and low-carbon faming advice. Wherever possible, we will need to replace finite fossil-fuel sources with renewable energy. But one energy use that cannot be replaced is nitrogen fertiliser (normally produced from natural gas) since the energy multiplier effect it provides is in the region of 6 to 1 (in other words every 1 unit of energy used in the production and application of fertiliser produces 6 units of energy in the form of higher crop yields). In the long-term future, fertiliser can be produced from renewable energy sources.

Farming and tourism

Alongside their role as food producers, the UK's farmers are increasingly appreciated for their role as environmental managers. The countryside, and therefore farming, is inherently interlinked with rural tourism. For example, farmers help to maintain the 188,700km of public rights of way that provide access to the English countryside. In Wales the figure is 33,000km. Since 2000, rural tourism has benefited from greater access to the countryside. Farmers have provided access to some 566,300 hectares of mountain, moor, heath and down, and a further 369,000 hectares of registered common land[9].

Each year, around two-thirds of the British population make at least one visit to the countryside, adding up to an annual total of more than one billion day trips. And with the diverse appeal of the UK countryside, it is no surprise that many people opt for rural destinations for their holidays. Each year, some 18.8 million holiday trips are to the countryside. Although the recession has meant fewer trips abroad by British holidaymakers, the rural economy has the potential to benefit from an increased proportion of the population holidaying at home. Indeed, the 2009 UK Tourism Survey shows there was a 17% increase in the number of domestic trips.

Other farm diversification

Farm diversification activities offer considerable scope for improving the economic viability of farm businesses while providing benefit for the wider rural economy by creating additional job opportunities. Examples include the letting out of farm buildings for other purposes, sport and recreation and, of course, tourism accommodation and catering. The total income from diversification amounted to some £300 million in 2008/09. For 17% of farms which had started up diversified enterprises, the income from the new enterprise outstripped the income from the rest of the farm business[10].

Rural broadband

Access to fast, reliable broadband is essential to the competitive success for rural enterprises, just as it is for their urban counterparts. It not only opens up new ways of doing business but also enables easier, more cost effective access to public services. The NFU welcomes the Government's commitment to ensure that a 'digital divide' is avoided and its plans for three market testing projects that will bring superfast broadband to rural and hard-to-reach areas.

FACT: AT A GLOBAL LEVEL, IT IS OF ABSOLUTE IMPORTANCE THAT THE WORLD HAS THE ABILITY TO FEED ITSELF

THE RECOVERY: WHY FARMING MATTERS

THE CHALLENGE FOR FARMING IN THE 21ST CENTURY

For much of the past decade, there has been a tendency throughout the developed world to take farming and the production of food for granted. The post-World War II period saw substantial increases in agricultural production, in part driven by expansionist agricultural policies and increased mechanisation. Food became more and more affordable, per-capita income growth soared and real prices of food to consumers fell. Until 2008, few would have believed that food security was anything but an issue for the poorest, least-developed countries in the world.

The events that shaped global commodity and food markets that year turned this orthodoxy on its head. Commodity prices from metals to foodstuffs rocketed. Oil prices broke through the symbolic $100/barrel, reaching a peak of $147 in July 2008. Wheat prices rose from £66 per tonne in January 2006 to around £180 in March 2008 with similar trends being seen in maize, soya and rice. Global milk prices increased exponentially to record levels.

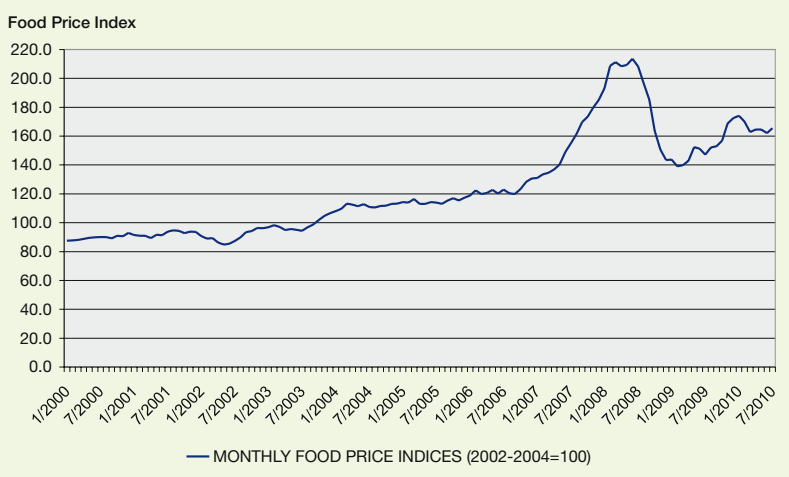
This combination sparked controversy around the world, leading to food riots in some countries. Food emergencies are not new – the world, developing countries especially, has faced the effects of natural and man-made calamities on numerous occasions over the past century. What differed this time were the structural causes of the crisis and its almost global impact.

The issue of food became the subject of countless studies, workshops and reports, as well as furious media coverage. There is now a realisation that farming and food production really does matter.

Although many prices fell back in late 2008, the fundamentals point to permanently higher and more volatile prices. Increasing world demand, constraints on land availability and more frequent and extreme weather events have, and are expected to continue to, define agricultural markets in the years to come.

Indeed, the summer of 2010 has seen further extreme volatility in the markets. Between June and early August wheat prices rose by 58%, at one point jumping 11% during a single day[11]. A key factor behind the rise was the worst drought in more than a hundred years, which devastated crops in the major wheat exporting countries of Russia, Ukraine and Kazakhstan. Meanwhile the crop in Canada, the world's second largest wheat exporter, was badly affected by heavy rain during the planting season and is expected to be as much as 30% lower than last year.

This has, then, been the second time in four years that weather events have led to unprecedented wheat market moves and demonstrates just how finely balanced global supply and demand is.



Source: Data from www.fao.org presented by NFU

THE RECOVERY: WHY FARMING MATTERS

THE CHALLENGE FOR FARMING IN THE 21ST CENTURY

The concept of food security

The term 'food security' has been much debated in academic circles and can cause some misunderstanding. The World Food Summit of 1996 described security existing when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The economic and social dimensions of food security are clear and relatively non contentious.

What appears to be more contentious is the relationship between national and global food security, the relative importance of self-sufficiency and the interplay between food security and environmental sustainability. The NFU believes that:

- At a global level, it is of absolute importance that the world has the ability to feed itself;
- There can be no UK food security without global food security;
- It would be misguided to conclude that food production in this country simply does not matter. British agriculture must be in a position to respond not only to any growth in domestic demand but, crucially, to play a part in the inevitable growth in global food needs.

Growing demand for food

To understand the challenge of global food security requires an examination of both demand and supply factors that are likely to shape global food markets[12]. The food price spikes of 2007/8 gave some indication of these emerging issues, although other factors are less well established.

Demographics remain the biggest factors defining the scale of global food demand. World population has grown by 13% in the past 10 years, and it is expected to continue growing at an average 1.1% in the next 10 years - some 60-70 million additional people every year. The population is, therefore, expected to grow from 6.8 billion to 7 billion in 2012, and exceed 9 billion by 2050 according to the UN[13]. Our own population in the UK is projected to rise by 17-18%, from around 62 million today to more than 72 million by 2050[14]. Higher population will obviously increase the demand for food.

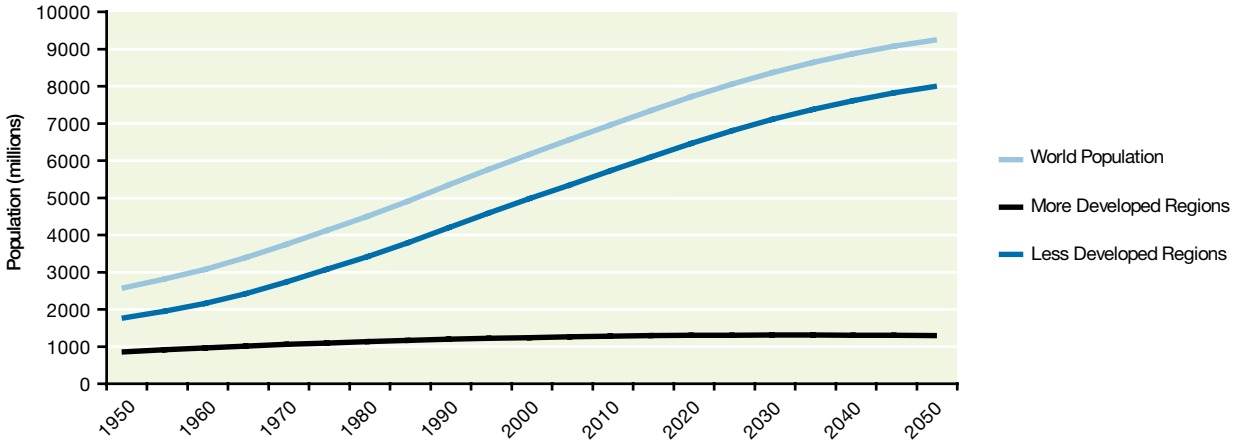
In the next 50 years we are going to have to produce more food than we have in the last 10,000 years.

Norman Borlaug (1914-2009), father of the Green Revolution

At the same time, more people will live in towns and cities as opposed to rural areas. The urbanisation of world population, especially in developing countries, has grown dramatically, while that in rural areas has remained relatively static since the 1980s.

Increasing urbanisation increases the reliance on production agriculture and modern supply chains to meet consumer demands[15]. Economic growth has shifted consumption patterns. As people rise above the income level of $2 per day, they demand more animal-based protein such as meat and dairy products which, in turn, require more grain. Even with the recent global economic crisis, growth is expected to resume a long-term upward trend, especially in developing countries. Combined, these factors have led to predictions that demand for food will grow by 50% by 2030 and by as much as 100% by 2050 – likened, in combination with climate change impacts, by the Government's Chief Scientist Sir John Beddington to a "perfect storm".

World population (medium variant), 1950-2050



Source: Chatham House, Food Futures report 2009

Can world agriculture respond?

From 1870 to the turn of this century, agricultural prices moved relentlessly down in real terms. The factors behind this long-term decline were the opening of new areas of production in the world, better transport and ever increasing productivity. Although the world's population more than quadrupled in the period, the world's ability to produce food more than kept pace. The result was surpluses, rather than shortages, and falling prices. Historically, growth in demand has been more than matched by increases in output.

However, a number of factors constrain the ability of farmers around the world to respond to the need for more food. The first aspect is land. While it is estimated that sufficient land area is available to meet growing world demand, much is hard to access, marred by poor infrastructure, or its use will come at an unacceptable environmental cost. And, in reality, every year the equivalent of 9.8 million hectares is lost to agriculture worldwide as a result of a combination of factors, including population growth and encroachment by towns and deserts.

THE RECOVERY: WHY FARMING MATTERS

THE CHALLENGE FOR FARMING IN THE 21ST CENTURY

A focus on land area, though, masks the fact that much of the growth in farm production was a result of increases in productivity. In recent years, figures from the FAO[16] illustrate that global productivity increases have levelled off. From the 1960s to the 1980s, annual cereal yield increases in Europe clocked in at around 4%; in the 1990s this had reduced to 2%; in this decade it has fallen to 1%. The same kind of stagnation has been felt around the world.

The fundamental cause for this is the reduction in agricultural research, development and investment. Food surpluses in the 1980s led commercial companies to question the returns they would get from the largest investments required in R&D. At the same time, there was a worldwide trend to reduce public research; this was particularly strong in the USA and the UK. Where investment continued it was largely concentrated on supporting environmental policies rather than yield increases.

The biggest unknown in terms of supply constraints is the impact of climate change. According to the International Panel on Climate Change (IPCC), climate change is very likely to affect water availability in many parts of the world, especially in developing countries, but also in some familiar farm production zones such as the western USA and North Eastern Brazil[17]. Irrigated land, which represents 18% of global agricultural land and 50% of the world's grain supply, is particularly threatened. In addition, extreme weather events may become more frequent. Competition for water may become more severe as a consequence of urbanisation and industrialisation.

These factors are likely to lead to a reduction in food security and an increasing reliance on production in temperate zones, which may witness more benign effects of climate change.

The fourth significant set of factors is energy. Agricultural production is in some part dependent on energy in the form of fuel, electricity and fertiliser in order to maximise productivity. Some 16% of US agricultural production costs are energy-based[18]. As energy prices spiked in 2007/8, so too did production costs. Competition for energy, based largely on finite fossil fuels, is likely to see long-term pressures on availability and price increases.

Impacts on global food security

How do we assess the likely impacts of these factors? Malthusian prophecies have been made before about the inability of the world to feed itself, but at each stage in world history, agriculture has responded.

On the plus side, high prices in 2007/8 already appear to have generated a short-term supply response, through bringing more land back into production and investment in inputs to increase productivity. However, following two exceptional global wheat harvests, 2010 is expected to see a shortfall between production and consumption. Total wheat output is expected to fall by nearly 30 million tonnes, due to drought in one part of the world (Russia, Ukraine) and heavy rain in another (Canada)[19]. Nonetheless, world stocks, which have built up over the last two years should, for the moment, be able to absorb the shortfall.

…the food needs of the world can only be met when the rich countries produce and export more food and not less, as is sometimes argued.

Professor Harald von Witzke, Humboldt University

Medium-term forecasts suggest that global commodity prices will remain higher than in the previous decade. This, in turn, may stimulate investment in agricultural research which should increase productivity. On the other hand, price volatility is likely to be a major feature of the next decade owing to a combination of economic instability, climatic events, lower stock levels and accelerating demand.

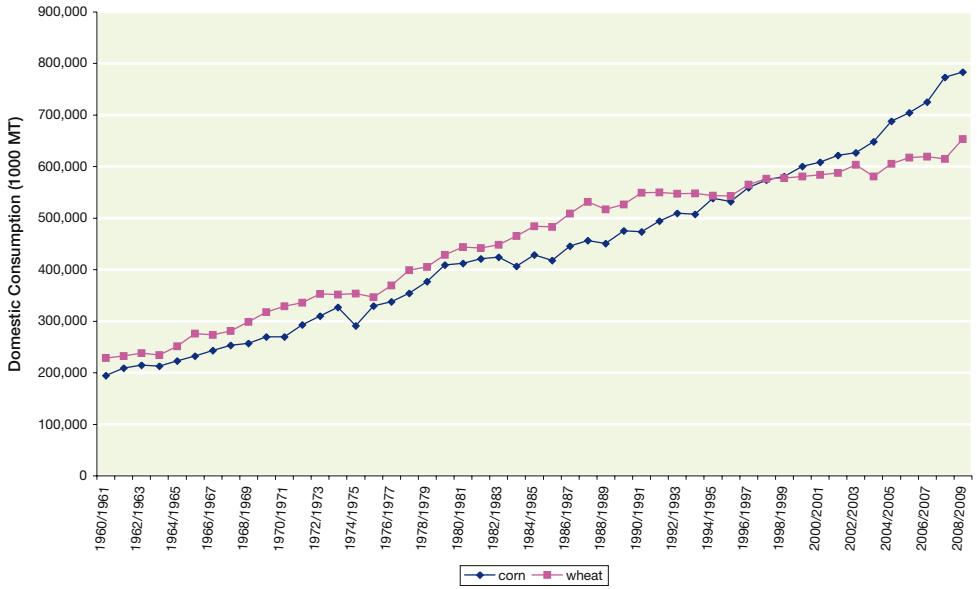
Science is key

Much has been said of the need for a new 'green revolution', such as that seen in the 1960s in developing countries, especially in Asia. The fallout from the recent neglect of funding for science will make that a major challenge in the short-term. The commitment at the G8 summit in Italy in July 2009 to dedicate $20bn to agricultural research in developing countries in the next three years is welcome and timely but should not mask the fact that at least an equivalent effort is required in developed countries.

The UN estimates that, in reality, imports to developing countries will grow, meaning that the idealistic vision of developing countries feeding the world will not be achieved[20]. This view has recently been reinforced by the authors of an independent research report on EU food production and trade. Harald von Witzke, lead author, writes: "while it may be desirable that the poor countries of the world contribute more to meeting their food needs, it has become apparent that these countries will not – even under the best of all realistic scenarios – be close to becoming self-sufficient in the decades ahead. In fact, the food import gap of developing countries is expected to quintuple between 2000 and 2030. Therefore, the food needs of the world can only be met when the rich countries produce and export more food and not less, as is sometimes argued."[21]

And, given that a reliance on traditional exporters from Australasia and the Americas may be compromised by climate change, a global strategy must inevitably recognise that agriculture in temperate zones, including the UK, will need to play a bigger part in securing world food needs.

Domestic consumption of corn and wheat, 1960-2009



Source: Data from www.fas.usda.gov presented by NFU

THE RECOVERY: WHY FARMING MATTERS

THE CHALLENGE FOR FARMING IN THE 21ST CENTURY

UK food security

The Cabinet Office report into food strategy of 2008[22] described the UK food security challenge as principally a global one. This follows an orthodox assumption that the UK is a rich country with relatively open markets and various trading partners.

We believe that this approach is naïve, relying as it does on trade and imports to buy our way out of any possible food shortages. But perhaps the biggest concern of all is the ability of countries around the world to place restrictions on food export in times of high prices.

In August 2010, one of the world's largest grain exporters, Russia, announced an intention to place restrictions on grain exports, sending wheat futures markets into overdrive. In July 2008, the World Bank counted 31 countries that had reduced or suspended their exports[23], a factor that contributed perhaps more than any other to food crises in many developing countries that year. These issues combined call into question the wisdom of relying on imports as being as available and/or affordable as they have been in the past.

A 2009 report by Chatham House[24] underlines the need to rethink this orthodox view on UK food security. It argues that the UK Government's belief that UK food security is indivisible from the global situation only addresses part of the issue and warns of the dangers of downplaying the capacity of the UK food system to respond.

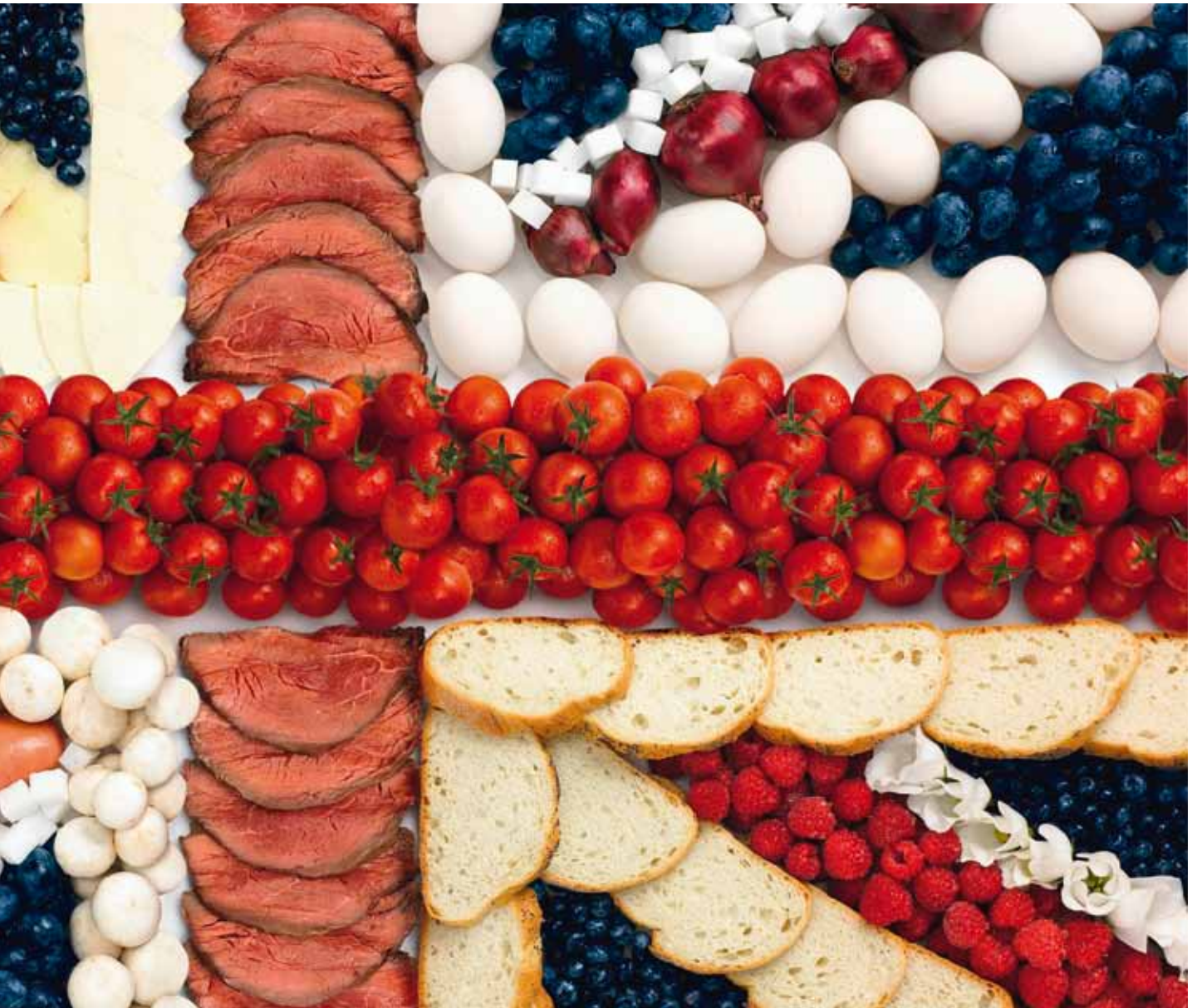
We would go a stage further. In a world characterised by growing demand, climate change and land constraints, production in this country is going to be very valuable – not only for us, but for the world as a whole. British agriculture uses less than two per cent of the water available in the country whereas at the global level, 70% of the world's available fresh water is used in agriculture.

Given our favourable position, developing the agricultural potential of this country becomes both an economic and a moral issue. Therefore, the question is not simply what the world can do for UK food security, but what the UK can (and indeed must) do for world food security.

The new-found interest in food security has given rise to a number of apparently simple - not to say simplistic - solutions. One commonly expressed view is that we should reduce or even eliminate meat and dairy products from our diet. According to its advocates, this would not only be a more efficient use of the world's food resources but would help combat climate change. This view ignores the fact that large parts of this country are only suitable for grass production and humans cannot ingest grass directly. Ploughing up grassland to produce more crops would in fact contribute to, not mitigate, climate change.

…we need to strip away those barriers to successful domestic food and farming that stand in the way of achieving greater food security.

David Cameron, NFU Conference 2008



Of course, if there were a real consumer shift away from meat and dairy the agriculture sector would have to adjust. But to attempt to regulate domestic supply would be entirely counter-productive. It would simply export meat and dairy production to countries where greenhouse gas emissions are typically much higher than in the UK.

Another apparently simple idea is that world food security could be achieved if obesity in the North and malnourishment in the South could somehow be balanced out. Apart from the obvious point that obesity is more due to the composition of a diet and lack of exercise than volume (calorific intake per person is much lower in the UK than 100 years ago), there is no miraculous mechanism which would somehow achieve this food exchange.

In conclusion, we believe it is imperative that farmers in the UK produce more. Of course, the level of production must be determined by demand. And of course we must increase production while reducing our environmental footprint and dependence on finite raw materials and by facing up to whatever challenges climate change presents. Once again, science will be absolutely fundamental to achieving that.


FACT: MORE THAN
6 MILLION HECTARES
OF LAND IS UNDER
ACTIVE ENVIRONMENTAL
MANAGEMENT

THE RECOVERY: WHY FARMING MATTERS

THE ENVIRONMENT: PRODUCING MORE, IMPACTING LESS, ADDING VALUE

Most farmers are passionate about the environment. Living close to nature they know better than anyone that a healthy environment is essential for a sustainable farming system. They want to pass on their land in better health than when they inherited it. That is why harnessing farmers' enthusiasm and local knowledge is the key to environmental improvement (and a great example of 'big society' in action). Of course, regulation is necessary as a backstop to prevent actual damage, but regulation rarely produces enhancement. Too often the focus is on process rather than outcomes. As the army saying has it 'one volunteer is worth ten pressed men.'

Farming the landscape...changing attitudes and opportunities

As we enter the next decade more will be expected of our farmers, the upcoming white papers on the natural environment and water mapping out additional challenges as we work to find the right balance between production and environmental protection. It's easy to think the patchwork of fields, woodlands, lanes and common land, all stitched together by 'living fences' of hedgerows, banks and stone walls, is a wild, 'natural' landscape - the reality is that it has been shaped and cared for by generations of farmers and landowners.

Anaerobic digestion (AD) is one of the key ways farming can help mitigate climate change by producing 'green electricity'. AD is the controlled breakdown of organic matter without air to produce methane-rich biogas and a residue that can be used as an agricultural fertiliser.

Dorset dairy farmer Owen Yeatman operates the UK's first on-farm AD plant powered by biogas produced from slurry and crops. His Lowbrook Farm digester converts silage, maize and the slurry from a 400-head dairy herd into biogas, producing electricity for more than 400 houses. The Lowbrook digester vessel stands 6m high and 24m in diameter and fits in well with the agricultural buildings on the farm. Farms can use the technology individually or on-farm digesters could be shared between several nearby farms. The NFU's vision is for 1,000 biogas plants by 2020. Currently, there are about 10 working on-farm AD plants producing electricity in the UK, with up to 100 at various stages of planning and development. In Germany, around 5,000 have been installed over the past 15 years, the majority on farms.

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David Airey farms 1,000 acres of Britain's toughest terrain – a hill farm on the edge of Keighley Moor in West Yorkshire. David's flock of around 800 hardy pedigree Swaledale lambing ewes thrive at 1,000 metres above sea level - despite heavy rain, high winds and peaty soil.

The whole of the farm is in the Higher Level Environmental Stewardship Scheme, and the farm's heather moor constitutes a Site of Special Scientific Interest. Stewardship is reaping rewards and David is particularly pleased to see an increase in the numbers of wading birds including lapwings and snipe. This is a result of hard grazing, which creates bare land for chicks, and the removal of rushes, which provided cover for predators including crows and peregrine falcons.

This careful management of predators has also led to growing grey partridge and hare populations, while the creation of scrapes (small pools) has heralded the return of greenshank and redshank populations. Without hill farmers like David, the famous British landscape would be lost as the moors became scrubland, highly susceptible to wild fires.

Natural or not, concern about the appearance of the landscape will not reduce and rightly so. The countryside provides a huge range of benefits to us all, not just as a place where our food is produced, but for leisure, access and tourism, and is, of course, a home for the stunning and diverse flora and fauna of Britain.

Farmers are sometimes caricatured as being profit driven at the expense of the environment – a perception which, if true, would be of real concern in times of increased food insecurity. In fact, a recent Defra survey found that 99% of farmers agreed with the statement that they place protecting the environment as their top priority, against 79% who place maximising profit as their primary task[25]. The oft quoted farming saying: 'live as if you will die tomorrow, farm as if you'll live forever' has never been more apt.

Time of year when hedges are cut

Farm Size	Jan - Mar		Apr - June		Jul - Sept		Oct - Dec		No. records used
	% of hedges	95% CI	% of hedges	95% CI	% of hedges	95% CI	% of hedges	95% CI	
Large	32	= 4	0	= 0	20	= 3	48	= 4	495
Medium	27	= 5	1	= 1	17	= 4	58	= 5	235
Small	35	= 4	1	= 1	17	= 3	48	= 4	507
All Farms	**33**	**= 3**	**1**	**= 1**	**17**	**= 2**	**49**	**= 3**	**1,338**

Source: Defra farm practice survey 2008

…where rebuilding our economies is the number one priority for governments across the world, we need to start making the economic case for our environment at least as strongly as we have been making the aesthetic one.

Caroline Spelman, Secretary of State for Environment, Food and Rural Affairs

Our landscape and the environment

Landscape care is the most obvious manifestation of farmers' stewardship ethic; hedgerows – removed with Government incentives to drive up production in the 1970s – have been gradually rejuvenated. In England and Wales there are some 460,000km of hedgerows and another 96,000km of stone walls[26].

The Countryside Survey conducted in 2007 shows little loss of woody boundaries since 1978 but subtle changes to our hedged landscape.

The past decade has seen a continuing trend towards less intensive management, not removal, of hedges and a reversion to unmanaged hedges or lines of trees. In 2006, the Countryside Agency (now part of Natural England) commented: "The quality and size of many hedgerows has improved and the widespread removal of this distinctive feature of the English landscape has all but ceased."[27]

The quality of a hedge for wildlife depends on well-timed trimming to maintain it as a shelter to livestock, growing crops and wildlife as well as a food source for overwintering birds. Defra's Farm Practices Survey 2008 found that almost half of all farmers are cutting their hedgerows every two to three years and that over 99% of this trimming is outside the bird breeding season – a third in the late winter so retaining hedgerow food and shelter for wildlife.

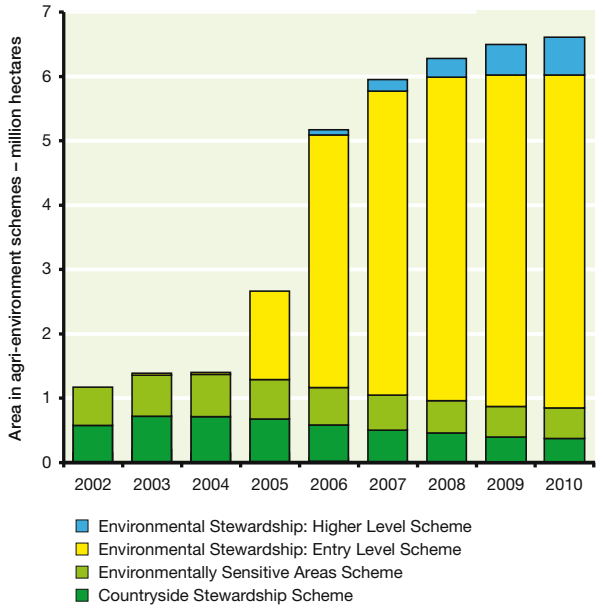
Conservation – part of the farming plan

Since 1987 there have been a number of Government-run conservation programmes to encourage and reward farmers for their countryside management; where they go beyond 'good agricultural practice'. Defra's Environmental Stewardship scheme was launched in 2005. The result is that the area of farmland entered into conservation agreements now exceeds 6 million hectares – almost two-thirds of the agricultural landscape. This reflects a positive contribution from almost 40,000 farmers in the Entry Level Scheme alone.

Similar progress has been made in Wales: there are now 660,000 hectares entered into the Welsh agri-environment schemes, Tîr Gofal and Tîr Cynnal, with over 7,400 farmers taking part. This demonstrates that for many farmers conservation is becoming 'business as usual'.

In the decade ahead we aspire to see professional farmers and growers remain committed to participation in these schemes.

Area under agri-environment schemes in England 2002-2010



Data collected on 31 December each year with the exception of 2010 data which is correct as of 31 March 2010

Source: Natural England, August 2010

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Birds and biodiversity

You could be forgiven for thinking from some media stories, that Britain is suffering some kind of biodiversity 'disaster'. The reality does not match the scare stories.

A complex interaction of changing land use, climate change, increased urbanisation and a host of other factors has seen fluctuations in bird species' numbers. The overall picture is encouraging but specific challenges remain.

The UK Biodiversity Action Plan (UK BAP), of which the NFU was a founding member, recognises the vital importance of farming in its many forms. The sheer scale of farmland means much of Britain's wildlife is found there, so finding the right balance between producing food and sympathetically managing that wildlife is critical, and something farmers are committed to doing – there are now over 13,000 hectares of land in the various wild bird seed options under agri-environment schemes in England alone[28].

The figures show this commitment is paying off: since the mid 1990s, the former sharp decline in the population of farmland birds has slowed down, with some species seeing an increase. The reed bunting and tree sparrow, amber and red-listed BAP priority species respectively, have increased in the UK by 33% and 55% since 1995. Farmland specialists such as the goldfinch and whitethroat have also increased in the UK during the same period (by 56% and 20% respectively), and the greenfinch, jackdaw and wood pigeon have also gone from strength to strength[29].

Beechenhill is a 37 hectare organic farm situated above the Dove Dale at the southern end of the Peak District National Park. Terry and Sue Prince have owned the farm for 25 years and run a herd of 30 Friesian dairy cows with 30 followers and a small flock of sheep. The farm is made up of small fields bounded by dry stone walls, which is a distinctive feature of the area.

Located 1,000 feet above sea level with open views over Staffordshire and Derbyshire, the farm has colourful displays of cowslips, early purple orchids, harebells and many other flowers and herbs on the lower slopes. Bird surveys have found curlews, skylarks, goldfinch and hawks on the farm, while hares and butterflies are regularly seen in the fields.

By modern standards the area of the farm is relatively small and, in order to make it work as a business, diversification has been crucial. The Prince family offer two B&B rooms and two cottages for self-catering holidays. In 2006, a traditional barn was converted for use as a wedding venue licensed for 10 weddings a year. The extra workload means the couple's daughter has returned to the farm with her husband, meaning the farm can one day be passed to the next generation.

We will introduce measures to protect wildlife and promote green spaces and wildlife corridors in order to halt the loss of habitats and restore biodiversity.

The Coalition Programme for Government

It's not just birds that are benefiting, however. The Countryside Survey 2007 also reported that plant species richness on British arable and horticultural land increased by 30%. That includes species used as food by birds and butterflies[30].

The UK BAP identifies areas of priority habitat in the UK, but only a relatively small proportion of this is designated as of national or international importance – as a Special Area of Conservation, Special Protection Area or Site of Special Scientific Interest (SSSI). In England, 4,000 sites – making up more than 7% of the land area – are designated as SSSI, managed by 26,000 land managers. In Wales there are over 1,000 SSSIs making up 12% of the total land area.

The Government set a target that 95% of SSSIs should be in a favourable or recovering condition by 2010. Today 88% of the SSSI area is in such condition, an increase from 57% in 2003[31]. While many farmers and landowners have contributed to this improvement, a substantial challenge remains.

Protected areas at 31 March 2005

United Kingdom Status 1		Number	Area ('000 ha)
Statutory			
	National Nature Reserves	394	236
	Local Nature Reserves	1,240	45
	Sites of Special Scientific Interest (SSSIs)	6,569	2,337
	Marine Nature Reserves	3	21
	Special Protection Areas (SPAs)	246	1,482
	Special Areas of Conservation4	608	2,504
	"Ramsar" Wetlands Sites	145	759
	Environmentally Sensitive Areas (ESAs)	43	3,190
	Area of Outstanding Natural Beauty	50	2,408
Non-Statutory			
	Biosphere Reserves	9	43
	Biogentic Reserves	18	8

Source: Defra

Walter Simon runs a family farm in Pembroke, West Wales, where he grows 140 acres of potatoes. His is one of over 3,000 farms which are part of Tir Gofal - the Welsh whole farm conservation and management scheme. Public and educational access is a central part of the scheme and the farm features a permissive bridleway and access to Bronze Age burial mounds.

The farm has 50 acres of woodland which are being fenced out to allow trees to seed and plants such as brambles, bluebells, snowdrops and hazel to grow. Hedgerows are also being planted using traditional methods and these measures have boosted the range of wildlife seen on the farm including buzzards, foxes, insects and wild flowers. A large lake on the farm is home to otters, eels, carp, herons, swans and moorhens. Walter's interest in educating future generations resulted in him recently establishing a woodland school on the farm. He also grows 10 acres of miscanthus as a biomass fuel for a local tourist attraction.

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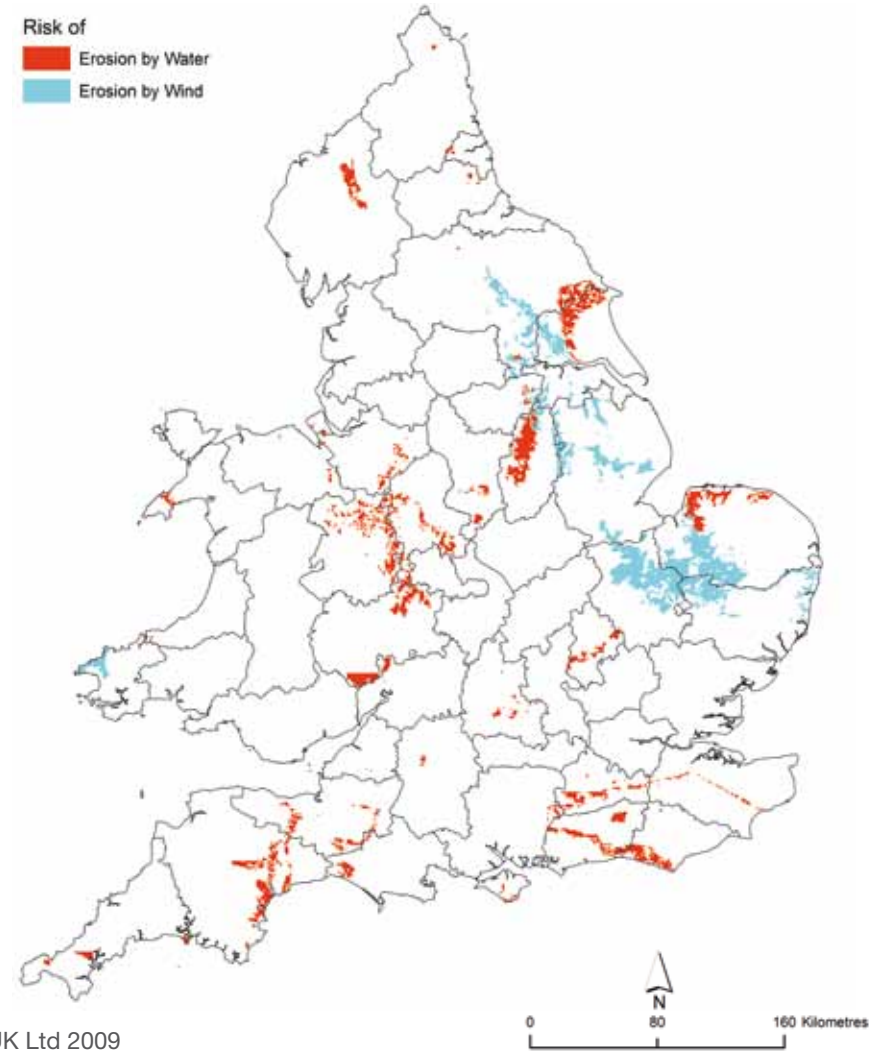
Areas most at risk from erosion



Source: ADAS UK Ltd 2009

Local solutions for farming's environmental footprint

While much good work is being done, the reality is that farming can never be a 'no impact' activity for air, soil or water. The key development must be to understand these impacts, minimise their detrimental effects and maximise the positives. In the same way, agriculture also depends on inputs such as energy, nutrients and pesticides – again managing these resources is critical to agriculture's footprint.

Soil – the foundation we work on

Soil fertility and structure are central concerns for farmers and growers. Sustaining a healthy soil is as critical to improving food production as it is the wider environment. Yet, soil is a dynamic entity. Typical English loamy soil is teeming with life, containing 25 tonnes of micro-organisms per hectare – including 4 tonnes of earthworms, 10 tonnes of fungi, and 1 tonne of springtails, spiders, beetles and snails[32].

UK soils also store some 10 billion tonnes of carbon (equivalent to almost 37 billion tonnes of CO^2). By changing their practices, farmers can increase carbon stored in soil and help mitigate against the effects of climate change. Modern practices, such as reduced tillage systems, can permit more carbon capture or sequestration, and reduce the risk of soil erosion.

We are going to require much, much more from our land in the years ahead. It is crucial that we step up our plans to nurture our soil health, protect the purity of our water and encourage our biodiversity to thrive and grow.

Caroline Spelman, Secretary of State for Environment, Food and Rural Affairs

Managing our pesticides

For many farming systems pesticide use is a necessity to ensure that crops reach maturity in the condition consumers are accustomed to expect. Farmers and agronomists and spray operators collectively have an important role in ensuring their activities do not adversely affect water quality – driven by consumer expectation and the same EU directives that drive water quality concerns more widely.

Considerable work on pesticide management has been undertaken as part of the Voluntary Initiative in the past nine years, giving advice and guidance to help farmers make the best environmental choice when using pesticides. As part of this programme, 89% of the arable farm area is sprayed with equipment tested under the National Sprayer Testing Scheme, over 20,000 people are on the National Register of Spray Operators, 100% of active agronomists are BASIS-registered and the area of crop protection management plans returned to the NFU covered a total of 1.6 million hectares.

The issue of bystander exposure remains controversial despite the Government winning, on appeal, a court case in the UK. Defra has recently consulted on this issue as part of a broader consultation on implementing new European pesticide legislation. The NFU view remains that a mandatory prior notification of spraying would be an unworkable nightmare buried in red tape, and that a local voluntary approach is a preferable solution.

Campaign for the Farmed Environment

When the European Union ended compulsory set-aside of arable land (8% in the UK), Defra worked up proposals for England aimed at recapturing the environmental benefits that had occurred almost incidentally on some set-aside land.

Concerned at the adverse impact that compulsory regulatory measures might have on English farmers' efforts to engage in environmental management, the NFU, with allies across the farming community, worked up an alternative industry approach - the Campaign for the Farmed Environment. This sets ambitious targets for entering higher quality options within Environmental Stewardship as well as voluntary action by farmers who, for whatever reason, do not feel these schemes are suitable for them. This is backed up by practical action to raise farmers' awareness and encourage practices which will be beneficial to biodiversity and resource protection.

The NFU is delighted that the Coalition Government has backed the campaign, because we firmly believe that this approach will deliver positive outcomes. The challenge now is for all parties - farmers, NGOs and the wider agricultural industry - to deliver on their commitments.

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Promoting professional nutrient management

Improvements in the use of nutrients in inputs and manures have been made by the industry over the past few years, attributed to reductions in fertiliser usage, better dissemination of responsible practice techniques, extensive research and awareness-raising.

Taking account of the nutrient value of manures or slurries is an essential step to good nutrient management planning which could potentially save the industry money. Applying what the crop needs is technically challenging given widely varying soil and weather conditions across the UK but is vital to reduce the risk of excess amounts of nutrients being lost to water and to the air. In recognition of the importance of good nutrient management planning, the industry launched Tried and Tested, a paper-based plan in early 2009 intended to help farmers and growers optimise nutrient use but also minimise any impacts on the environment.

Ten year change in UK consumption of fertiliser nutrients ('000 tonnes)

	Nitrogen (N)	Phosphate (P^2O^5)	Potash (K^2O)	Total
1997/98	1,375	383	487	2,245
2003/04	1,130	278	376	1,784
2004/05	1,061	259	352	1,672
2005/06	1,003	235	325	1,563
2006/07	1,008	224	317	1,549
2007/08	1,036	215	325	1,576
10 year % change 1998-08	**- 24.7**	**- 43.9**	**- 33.3**	**- 29.8**

Source: AIC Fertiliser Statistics 2009 Report

Our plan will build on trends in fertiliser use that show significant reductions in the past 20 years. The British Survey of Fertiliser Practice reports that nitrogen application rates in England and Wales have fallen from 147kg/ha in 1987 to 99kg/ha in 2009. Emissions of ammonia have fallen by 23% since 1990[33]. This can be attributed, in part, to reductions in nitrogen fertiliser usage.

Overall phosphate application rates in England and Wales have also seen sharp falls, from 39kg/ha in 1987 to 13kg/ha in 2009[34]. This is the lowest rate since records began in 1974.

Water matters more than ever

Water will be a major issue for farming in the next decade. A combination of EU legislation (including Water Framework, Bathing Waters and Drinking Water Directives), climate change, flooding and market needs mean that farmers can neither take continued access for granted nor ignore their impact on quality. This is why the NFU is working closely with other industry groups and the Environment Agency to plan our use of water through River Basin Management Planning and catchment sensitive farming.

In fact farming has much to offer; maintaining soils in good condition aids recharge of aquifers and base flow to streams.

Agriculture is a minor user of water, accounting for less than 2% of all water abstracted in England and Wales and only 1% is used for spray irrigation[35]. Irrigation is vital in providing us with the opportunity to grow a wide range of fruit and vegetables and employ on average three times more people than non-irrigated agriculture on an area basis. With demand for water from domestic and industrial uses growing, we must continue to be able to secure water resources for agriculture and horticulture now and into the future.

Waste not, want not

The UK disposes of over 15 million tonnes of organic waste material a year. Farmers are playing a vital role by recycling such organic materials to farmland.

Use of materials such as composts, anaerobic digestate, paper crumble and bio-solids provides valuable nutrients to the soil, adds organic material, helps maintain healthy soil structure and turns waste that might otherwise end up in landfill into a useful resource. Of the 3.6 million tonnes of waste material composted, over 53% is now used in agriculture and horticulture, particularly in the arable sector[36].

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Through a joint industry Climate Change Task Force, the UK's farmers have highlighted their essential role in tackling greenhouse gas emissions[37] and are encouraging the Government and its advisers to work with the industry to ensure that all potential opportunities are taken up. The task force's premise is that there will be substantial economic, social and environmental benefits in taking early action to address the challenges of climate change. Agriculture is responsible for only a small percentage (0.7%) of the total carbon dioxide emitted in the UK but a much greater proportion of nitrous oxide emissions (from cultivation and fertilisation of soils) and methane emissions (from ruminant livestock and manure handling).

With the right advice and support, farmers can increase their energy efficiency, maintaining or increasing output while continuing the long-term decline in agricultural greenhouse gas emissions. Carbon dioxide which is given off by other sectors can also be stored in soils and vegetation through changing farm practice, although the current carbon price provides only a modest incentive – this should be more of an option for the future.

Agricultural production of low-carbon energy is also making a growing contribution towards ambitious UK and EU targets for renewable energy by 2020 and helping to diversify rural jobs and businesses.

Mitigating climate change

The UK Low Carbon Transition Plan, launched in July 2009, requires the agriculture sector to reduce its emissions by 3 million tonnes CO^2 equivalent by 2018-22. Many different players in the sector have worked together to agree an Agricultural Industry Greenhouse Gas Action Plan, published in February 2010. The GHG Action Plan provides a road-map to achieving the 3 million tonnes target - by using nitrogen more efficiently, by improved livestock feeding and breeding, and by improved manure management. It is intended to be a living document, responsive to changes in policy and knowledge, and requiring regular change and refinement over time.

The NFU believes that the reduction target is challenging but realistic and the industry-led, bottom-up approach is precisely the right way to achieve it.

Climate Change – positive facts about farming

- According to the Defra Farm Practices Survey, 26% of farmers are taking action to adapt to climate change by taking advantage of longer growing seasons.
- 38% of farmers think the changing climate is already affecting their farm and 48% are taking action to combat climate change.
- Methane and nitrous oxide emissions from UK agriculture have fallen by 18% and 23% respectively from 1990 to 2008.
- 142 protected crops businesses have joined the NFU Climate Change Levy Scheme, cutting their energy use by more than 22%, equivalent to taking 100,000 cars off the road for a year.
- Over 10 billion tonnes of carbon is estimated to be stored in UK soils. Half of this in organic soils and about 0.5 billion tonnes in peat soils that cover only 3.3% of the land area.
- A new hedgerow may store 600-800 kg of CO^2 equivalent per year per km, for up to 20 years.
- Agri-environment schemes have been estimated to deliver greenhouse gas savings of 3.46 million tonnes of CO^2 equivalent per year.

…if we want real change for the long-term, we need people to come together and work together – because we're all in this together.

David Cameron, Prime Minister

Farmers playing their part

By nature farmers tend to be individualists; operating as small businesses outside heavily-populated and resourced urban centres, they are typically self-reliant and resilient. And yet, as an industry - united by representative bodies and local interest groups - farmers have an excellent record in developing co-ordinated campaigns and initiatives which add value, both to society and the economy. There are many examples of what the Coalition Government calls the 'Big Society' already in operation. We have a good story to tell and we highlight some examples on this page (see box).

A commitment to smaller government and increased local delivery of decision-making is instinctively attractive to the majority of farmers. Smaller government, for example, offers the prospect of more streamlined regulation and less burdensome red tape. This will help to save businesses costs and free them up to focus on where the risks really are, and what outcomes are needed, rather than the processes associated with heavy-duty reporting.

Farming makes a major contribution to the rural economy and cohesive local communities. But localism also brings a challenge for agriculture; ensuring that farm businesses play a full role in local economic partnerships, for example, and – more importantly – ensuring that, as far as the planning system is concerned, there is robust guidance informing planning at the 'larger-than-local' level. The Coalition has committed to developing *"a simple and consolidated national planning framework covering all forms of development and setting out national economic, environmental and social priorities"*. It is vital that this national framework reflects the importance of the sorts of development needed to meet the food production challenge and increase the competitiveness of rural areas through diversification and energy generation.

Playing their part

- The Campaign for the Farmed Environment is a great example of the big society in action. Set up by the industry in 2009, it involves a range of voluntary partners, from the RSPB to Natural England, united in a campaign which sets ambitious targets for environmental management, encourages voluntary action by farmers and land managers, and offers practical advice.
- Organised by Leaf (Linking Environment and Farming), Open Farm Sunday is an annual event which sees farms up and down the country open their gates to the public so that they can learn more about where their food comes from and what farmers are doing as stewards of the environment.
- The Red Tractor Scheme is a food assurance scheme set up 10 years ago by a group of food producers, processors and retailers. When you see the Union flag in the Red Tractor logo you are guaranteed that the food you are buying comes from British farms and meets high standards of production relating to food safety and hygiene, animal welfare and environmental protection. The logo now appears on over £10 billion worth of food and drink products.
- Investment in agricultural R&D is critical if farmers are to meet the food production challenge whilst protecting the environment and addressing climate change challenges. It is not only a question of publicly funded research though; farmers and processors invest in research through the levies they pay to the Agriculture & Horticulture Development Board. The largest part of the AHDB's spend (some £15 million a year) goes on research and knowledge transfer programmes. In other words, as well as investing in their own businesses for the long term, farmers have a direct stake in the future solutions science will provide.

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