WHY FARMING MATTERS MORE THAN EVER

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It is now three years since the NFU launched its first “Why Farming Matters” campaign.

The purpose of the original campaign was to challenge what had, by then, become almost the accepted wisdom: that agricultural production was, at best, a rather inconvenient by-product of land and countryside management.

It was in that same year, 2006, that the NFU made what seemed at the time an exceptionally bold prediction that “the era of cheap world food is drawing to a close”.

Everything that has happened since then has vindicated our stance. We have seen the extraordinary price spikes of 2007/08 which gave rise to real anxiety around the world about future food security. And although prices have now fallen considerably, economists predict that prices will be, on average, higher and more volatile than in the immediate past. We have seen the financial services industry - hitherto the Government’s darling - bring about a credit crunch which has caused the biggest global recession since the 1930s. Meanwhile, the food and farming industries’ solid contribution to Britain’s economy is again being properly valued. And we have seen hugely ambitious mandatory targets set for carbon reduction and renewable energy which will require an enormous contribution from the land-based sectors if they are to be met.

This, in other words, is why farming matters more than ever.

I am really pleased that the message that farming matters has struck a chord with the general public. We regularly survey public attitude to farmers and farming and this year 84% of the public agrees that farming will become increasingly important in the years to come and that food security is a crucial issue. 73% now describe their view of farmers as favourable or very favourable, compared to 67% in our last survey in 2005. And a huge 96% said that growing crops and raising animals is the most important thing that farmers do.

One myth which is sometimes still heard is that 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 this is happening and must continue to do so in future: the environment is not an option but an imperative.

A key message of this report is that farmers are taking ownership of the problems they face, in particular through an impressive range of industry initiatives. But not all challenges can be surmounted by industry effort alone.

In an election year the NFU is setting out the actions we would like an incoming Government to take to allow the industry to respond to change and continue to provide solutions to the nation. We call this section “Why Farming Matters in the Election” and we hope all political parties will take careful note of our recommendations.

Peter Kendall
President
FACT: THE RURAL ECONOMY IS WORTH £300 BILLION EACH YEAR AND EMPLOYS 5.5 MILLION PEOPLE.
WHY FARMING MATTERS MORE THAN EVER

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 £5.8 billion to the GVA\(^1\) (Gross Value Added) 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, total farm income increased by 36% in 2008\(^2\). The contraction of the economy as a whole by 2.4% in GDP terms in the first quarter of 2009 serves to highlight 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 £300 billion each year, employs 5.5 million people and has farming at its centre.

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(a) Overseas trade data is final for the full year 2007 from HM Revenue and Customs. (Data may not equal total due to rounding). Dashed lines indicate main trade flows.

(b) Consumers' expenditure, properly known as household final consumption expenditure, is final from the Office of National Statistics for full year 2007 and is calculated at current prices. (Data may not equal total due to rounding).

(c) 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. GVA figures are from the Office of National Statistics and is provisional data for full year 2007, which is calculated at basic prices (market prices less taxes plus subsidies).

Source: Defra, Agriculture in the UK 2008
Agriculture is a significant employer, with 531,000 people – or 1.7% of the total UK workforce – involved in primary agricultural production. Approximately 188,000 are employees while the remaining 343,000 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 business.

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 and in Wales total annual income from diversified activities was £19 million. Similarly, the productivity of UK agriculture has increased by 55% since 1973, reflecting the technical and management efficiencies gained by UK farmers.

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 6.5% of the total economy and generates some £80 billion in GVA terms to the UK economy. In addition, an estimated 3.6 million people are employed, 14% of all employees. Also, the UK food and drink industry accounts for approximately 5% of total UK exports, with some £13.6 billion generated through overseas sales in 2008.

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. Shopper demand for local food appears to have transcended the focus on low pricing, with the latest IGD tracking data showing a long term increase in shoppers buying local. 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.

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.

Without a healthy farming base, there is a very real risk that the £22 billion 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.

Gross Value Added and employment in the agri-food sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>GVA £billion</th>
<th>Employment (000 persons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>5.8</td>
<td>531</td>
</tr>
<tr>
<td>Food &amp; drink manufacturing</td>
<td>21.2</td>
<td>410</td>
</tr>
<tr>
<td>Food &amp; drink wholesaling</td>
<td>9.1</td>
<td>194</td>
</tr>
<tr>
<td>Food retailing</td>
<td>21.7</td>
<td>1,151</td>
</tr>
<tr>
<td>Foodservice</td>
<td>21.7</td>
<td>1,388</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>79.5</strong></td>
<td><strong>3,674</strong></td>
</tr>
</tbody>
</table>

Source: Defra, Agriculture in the UK 2008
Growing the energy market

As an industry that is so reliant on natural resources, farmers are more aware than most of the challenges of limited resources and climate change. Farmers also recognise that they can contribute to developing renewable energy markets and harness emerging technologies. Farmers have become familiar with terms such as biofuel, biomass and biogas, which have entered the lexicon of agriculture in recent years.

Like most renewable technologies, the UK biofuel market is developing quickly. Two bioethanol plants are under construction with a potential to produce 400 million litres each from around 1 million tonnes of UK wheat. This will not only reduce the amount of feed wheat typically exported, but will provide a valuable source of dried distillers grains, a co-product that can be used as protein feed for UK livestock.

Areas of biomass crops (such as miscanthus or short rotation coppice) are increasing. Technology availability and pricing (in terms of small-scale combined heat and power plants) and volatile 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, more frequently referred to as Anaerobic Digestion (AD), is another emerging energy sector. Already an established energy resource in some parts of Europe, UK farmers are beginning to take advantage of the energy potential offered by AD. Not only are they using farm waste to generate renewable energy, they are also putting waste from industry and households to a productive and profitable use.

In future, the UK’s farmers will not only be providing us with the food we eat but with the fuel and energy that we can no longer afford to take for granted. The NFU’s ambition is that in time the agriculture sector could become a net energy exporter.

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 reducing energy use in the last 20 years, and this will certainly have to continue. And, wherever possible, we will need to replace finite sources with renewable energy. But one energy use that should not be replaced is nitrogen fertiliser (normally produced by natural gas) since the energy multiplier effect 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 longer term, fertiliser will be produced from renewable energy sources.
The agricultural supply industry

The UK’s diverse agricultural production base also means a derived demand for a range of specialist inputs. From animal feed manufacturers to veterinarians, the fortunes of many providers of agricultural goods and services are dependent on continued demand from farmers. In total, the agricultural supply industry is estimated to generate £1.2 billion GVA per annum, and provide 24,000 jobs in over 1,500 businesses. Typically, agricultural supply businesses are significant in their own right.

For example, UK farmers spent a total of £5.4 billion on animal feed and fertiliser in 2008. 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 rural fabric of the UK.

Farming and tourism

Alongside their role as food producers, the UK’s farmers are increasingly recognised for their role as environmental managers. The countryside, and therefore farming, is inherently interlinked with rural tourism. In England, for example, farmers help to maintain the 188,700 km of public rights of way that provide access to the countryside. In Wales the figure is 33,000 km. 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.

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 1 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 means fewer trips abroad by UK holidaymakers, the rural economy has the potential to benefit from an increased proportion of the population holidaying in the UK.

Many farmers are directly involved in the tourism industry itself, providing accommodation and farm attractions. Farmers offering on-farm accommodation and catering generate some £550 million of England’s farm output. They are part of the rural tourism sector that generates an estimated £14 billion to the economy and supports some 25,000 businesses, many of them small and micro-enterprises. Agriculture will continue to preserve, manage and shape the countryside that underpins the rural tourism sector.
FACT: AT A GLOBAL LEVEL, IT IS OF ABSOLUTE IMPORTANCE THAT THE WORLD HAS THE ABILITY TO FEED ITSELF
WHY FARMING MATTERS MORE THAN EVER
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 2007, 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 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 have now fallen back, 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 defined and are expected to continue to define agricultural markets in the years to come.

![Annual food price index (2004 = 100)](source: Data from www.fao.org presented by NFU)
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. Defra’s discussion paper of July 2008 also describes a definition based on availability, access and affordability. The economic and social dimensions of food security are clear and relatively non-contentious. What appears to be more up for debate 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.

- 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. 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 per cent in the past 10 years, and it is expected to continue growing at an average 1.1 per cent 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. Higher population will obviously increase the demand for food.
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\textsuperscript{13}. Economic growth has shifted consumption patterns. As people move over 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 current 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 John Beddington to a “perfect storm”.

**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 as the following chart from the UN Food and Agriculture Organisation (FAO) shows.

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 world-wide as a result of a combination of factors, including population growth and encroachment by towns and deserts.
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\textsuperscript{14} 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\textsuperscript{15} such as the western USA and North Eastern Brazil. 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 decrease in food security and an increasing reliance on production in temperate zones which may be less affected by climate change.

The fourth significant set of factors is energy. Agricultural production is for 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.\textsuperscript{16} 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. As we stand today, issues of global food security appear to be ones of distribution rather than production. Yet to see this as a long-term outlook, we believe, would be dangerously complacent.

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. This has alleviated some of the concerns about stock levels, at least temporarily.

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, low stock levels and accelerating demand. This does not create the perfect climate for encouraging commercial investment in agriculture.

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. Previous neglect of funding for science will make that all nigh-on impossible in the short-term. At the same time, there must be a recognition that this, alone, will not address global food security concerns as some believe; 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. The commitment at the G8 summit in Italy in July 2008 to dedicate $20 billion 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.

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

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

The Cabinet Office report into food strategy of 2006 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.

This approach, relying on trade and imports to buy our way out of any possible food shortages, is naïve in the extreme. 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 July 2008, the World Bank counted 31 countries that had reduced or suspended their exports, a factor that contributed perhaps more than any other to food crises in many developing countries last 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 recent report by Chatham House 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 per cent 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.
Of course, if there were a real consumer shift away from meat and dairy the agriculture sector would have to adjust to this; 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.
FACT: MORE THAN 6 MILLION HECTARES OF LAND IS UNDER ACTIVE ENVIRONMENTAL MANAGEMENT
WHY FARMING MATTERS MORE THAN EVER

INDUSTRY ACTION: THE KEY TO ENVIRONMENTAL IMPROVEMENT

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 is the key to environmental improvement. 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 21st century the expectations of our countryside and our farmers will continue to rise, as we work to find the right balance of food 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 a 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 only four working plants producing electricity in the UK, compared with Germany’s 4,000.
WHY FARMING MATTERS MORE THAN EVER

INDUSTRY ACTION: THE KEY TO ENVIRONMENTAL IMPROVEMENT

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 maximizing profit as their primary task21. 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

<table>
<thead>
<tr>
<th>Farm Size</th>
<th>Jan - Mar</th>
<th>Apr - June</th>
<th>Jul - Sept</th>
<th>Oct - Dec</th>
<th>No. records used (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of hedges</td>
<td>95% CI</td>
<td>% of hedges</td>
<td>95% CI</td>
<td>% of hedges</td>
</tr>
<tr>
<td>Large</td>
<td>32 = 4</td>
<td></td>
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<tr>
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<td>All Farms</td>
<td>33 = 3</td>
<td></td>
<td>1 = 1</td>
<td></td>
<td>17 = 2</td>
</tr>
</tbody>
</table>

Source: Defra farm practice survey 2008
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. 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.”

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 over 35,000 farmers in the Entry Level Scheme alone.

Similar progress has been made in Wales: there are now 509,000 hectares entered into the Welsh agri-environment schemes, Tir Gofal and Tir Cynnal, with over 5,800 farmers taking part. This demonstrates that for many farmers conservation is becoming a key part of their business.

In the decade ahead we aspire to the vast majority of professional farmers and growers participating in these schemes.
WHY FARMING MATTERS MORE THAN EVER

INDUSTRY ACTION: THE KEY TO ENVIRONMENTAL IMPROVEMENT

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 more than 5,000 hectares of wild bird seed mixtures being grown in England alone25.

The figures show this commitment is paying off: since the mid 1990s, the population of farmland birds has remained level, with some species seeing an increase. The reed bunting and tree sparrow, both red-listed BAP priority species, have increased in the UK by 31% and 15% since 1994. Farmland specialists such as the goldfinch and whitethroat have also increased in the same period (by 39% and 31% respectively), and the greenfinch, jackdaw and wood pigeon have also gone from strength to strength26.

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.
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.

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 has set a target that 95% of SSSIs should be in a favourable or recovering condition by 2010. Today 88.4% of the SSSI area is in such condition, an increase from 58.3% in 2003. While many farmers and landowners have contributed to this improvement, a substantial challenge remains.

**Protected areas at 31 March 2005**

<table>
<thead>
<tr>
<th>United Kingdom Status 1</th>
<th>Number</th>
<th>Area ('000 ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statutory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Nature Reserves</td>
<td>394</td>
<td>236</td>
</tr>
<tr>
<td>Local Nature Reserves</td>
<td>2,140</td>
<td>45</td>
</tr>
<tr>
<td>Sites of Special Scientific Interest (SSSIs)</td>
<td>6,569</td>
<td>2,337</td>
</tr>
<tr>
<td>Marine Nature Reserves</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>Special Protection Areas (SPAs)</td>
<td>246</td>
<td>1,482</td>
</tr>
<tr>
<td>Special Areas of Conservation</td>
<td>608</td>
<td>2,504</td>
</tr>
<tr>
<td>“Ramsar” Wetland Sites</td>
<td>145</td>
<td>759</td>
</tr>
<tr>
<td>Environmentally Sensitive Areas (ESAs)</td>
<td>43</td>
<td>3,190</td>
</tr>
<tr>
<td>Area of Outstanding Natural Beauty</td>
<td>50</td>
<td>2,408</td>
</tr>
<tr>
<td><strong>Non-Statutory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biosphere Reserves</td>
<td>9</td>
<td>43</td>
</tr>
<tr>
<td>Biogenetic Reserves</td>
<td>18</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: Defra

Walter Simon runs a family farm in Pembroke, West Wales, where he grows 140 acres of potatoes. His is one of 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 like 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.
WHY FARMING MATTERS MORE THAN EVER

INDUSTRY ACTION: THE KEY TO ENVIRONMENTAL IMPROVEMENT

Managing 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. UK soils also store some 10 billion tonnes of carbon (equivalent to almost 37 billion tonnes of CO₂). 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.

Source: ADAS UK Ltd 2009
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 eight 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 sprayers tested under the National Sprayer Testing Scheme, over 20,000 spray operators 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.

Although the Government won on appeal a court case about bystander exposure to pesticides, it has announced that it will look to introduce further measures to re-assure the public. A mandatory prior notification of spraying would be an unworkable nightmare. So the NFU is actively investigating whether a voluntary system would be practical and would have the desired effect.

A Campaign for the Farmed Environment

When the European Union ended compulsory set-aside of arable land (8% in the UK), the Government in England worked up proposals to recapture the environmental benefits that had occurred almost by accident 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 was delighted that the Government backed the Campaign for the Farmed Environment in July 2009, because we firmly believe that this approach will deliver positive outcomes. The challenge now is for all parties - farmers, Government and its agencies, NGOs and the wider agricultural industry - to meet their commitments.
WHY FARMING MATTERS MORE THAN EVER

INDUSTRY ACTION: THE KEY TO ENVIRONMENTAL IMPROVEMENT

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)

<table>
<thead>
<tr>
<th>Year</th>
<th>Nitrogen (N)</th>
<th>Phosphate (P2O5)</th>
<th>Potash (K2O)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996/97 10 years ago</td>
<td>1,440</td>
<td>412</td>
<td>501</td>
<td>2,353</td>
</tr>
<tr>
<td>2002/03</td>
<td>1,131</td>
<td>382</td>
<td>375</td>
<td>1,788</td>
</tr>
<tr>
<td>2003/04</td>
<td>1,130</td>
<td>278</td>
<td>376</td>
<td>1,784</td>
</tr>
<tr>
<td>2004/05</td>
<td>1,061</td>
<td>259</td>
<td>352</td>
<td>1,672</td>
</tr>
<tr>
<td>2005/06</td>
<td>1,003</td>
<td>235</td>
<td>325</td>
<td>1,563</td>
</tr>
<tr>
<td>2006/07</td>
<td>1,008</td>
<td>224</td>
<td>317</td>
<td>1,549</td>
</tr>
</tbody>
</table>

10 year % change 1997-07 - 30.0 - 45.6 - 36.7 - 34.2

Source: British Survey of Fertiliser Practice 2007

Our plan will build on trends in fertiliser use that indicate significant reductions in the past 20 years. The British Survey of Fertiliser Practice reports that nitrogen application rates dropped from 147 kg/ha to 108 kg/ha in the past decade and that nitrogen application for grassland in 2007 was the lowest since 1983. Emissions of ammonia have fallen by 19% since 1990 and can be attributed, in part, to reductions in nitrogen fertiliser usage.

Phosphate application rates in England and Wales have drastically decreased from 39 kg/ha in 1987 to 22 kg/ha in 2007. 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. 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.
Anaerobic digestion of animal manures from agriculture along with organic wastes from industry and domestic households can deliver a number of other benefits, such as using biogas from the treatment process to generate heat and electricity.

**Farming in a changing climate...**

Through a joint industry Climate Change Task Force, the UK's farmers and growers have highlighted their essential role in tackling greenhouse gas emissions (reference: ‘Part of the Solution’), and have called on the Government and its advisers to work with the industry to ensure that all potential opportunities are taken up. 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.

A wide range of bioenergy technologies (biogas, biomass, biofuels) and other renewables such as wind and solar power provide agriculture with the means to harness an abundance of natural energy resources, whether for on-site energy needs or the export of energy services. 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 CO₂ equivalent by 2018-22. The agriculture sector is called upon to develop and agree, by spring 2010, an industry plan to achieve this target - by using nitrogen more efficiently, by improved livestock feeding and breeding, and by improved manure management.

The NFU believes that the reduction target is challenging but realistic, and the industry-led approach is precisely the right way to achieve it. The NFU commits itself to playing a leading role in developing the plan.

The Government's Renewable Transport Fuel Obligation came into effect in 2008, requiring fuel suppliers to supply a set percentage of fuels sold from biofuels, rising from 2.5% in 2008 to 5% in 2013, or pay a buy-out price. Biofuel production takes place in Britain both on a small scale and at a large industrial scale, with a range of additional production facilities due to open over the next few years. The majority of UK-sourced feedstocks for biofuels have achieved the highest environmental sustainability standards and high greenhouse gas savings, according to the Renewable Fuels Agency.

The NFU is extremely concerned that the development of bio-energy will be undermined by the use of the concept of “indirect land use change”. The idea here, which is pushed by our own Government among others, is that restrictions need to be placed on crops grown for bio-energy in order to avoid inappropriate knock-on consequences for land use. The NFU is convinced that the concept, as currently defined, is conceptually flawed and without scientific rationale.

Biomass crops, such as miscanthus and short rotation coppice willow, are being grown to provide low-carbon fuel for local heating or power stations on both large and small scales, supported by a range of Government incentives to encourage uptake of renewable heat and electricity. It has been estimated that between 350,000 and one million hectares could support perennial energy crops in the medium term (2020 onwards).
Sharing responsibility for animal health and welfare

Although not strictly an environmental issue, animal health and welfare fits neatly into the theme of the farming industry taking responsibility for its own destiny. The Government, supported by the other main parties in England, is determined that farmers should share the public cost of animal health policy. Leaving aside that farmers already pay a substantial price for animal health - both in disease prevention on their farms and as a result of restrictions imposed when there is a disease outbreak - we believe it is unreasonable for farmers to pick up a bill for a policy in which they have had no say.

That is why the NFU backs the creation of an independent body, in which farmers have an important say, to oversee animal health and welfare policy. Not only would this “take politics out of animal disease” but it would give the opportunity to review current policies and practices and see what is value for money and what is not. We believe the potential is there to save more money than the Government is proposing to raise by levy from farmers.
WHY FARMING MATTERS MORE THAN EVER

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