

YOUR ENVIRONMENT

ISSUE 22 FEB – APR 2009

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Green and pleasant

A look at how farming protects and enhances the environment



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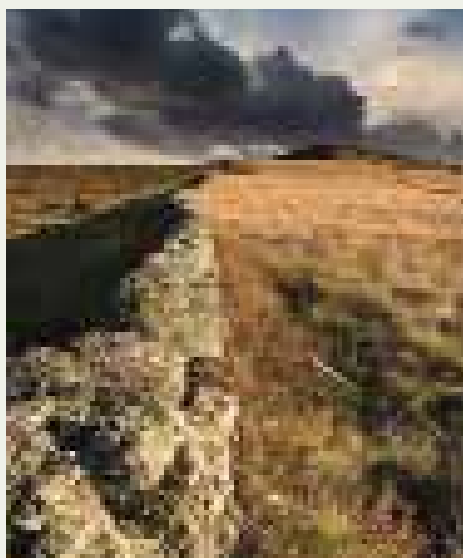
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GROWING GREEN

by Paul Leinster



Paul Leinster is
Chief Executive of the
Environment Agency

Farmers grow the food we eat and are the guardians of our countryside – they look after the soil and water, and provide habitats for wildlife. But if farmland is not properly cared for, there can be some less desirable impacts on the environment, such as soil erosion or water pollution from fertilisers and chemicals.

The Environment Agency works with farm businesses on a range of measures to help them protect the environment. Many of our staff come from agricultural or land management backgrounds and we know that the majority of farmers are doing the right thing. Three quarters of England and Wales is agricultural land, and most of it is in safe hands. There are only a few cases of severe pollution from agriculture each year. But one is one too many.

Soil is a key asset on any farm and we provide farmers with advice on good soil management through *thinksoils*. Our catchment sensitive farming programme helps farmers to balance the competing demands of protecting the water environment from excess nutrients and running viable businesses. We fully understand that all our interests are best served by farming in a way that sustains the environment, produces excellent food and provides farmers with a decent livelihood.

This issue of *Your Environment* looks at how farmers balance running their businesses with protecting the environment. The articles show how they can combine good environmental practice with good food production to create truly green fields.

Are you playing the flood lottery?

Over one million people living in areas vulnerable to flooding are unaware that they and their properties are at risk.

Only nine per cent of the five million people living in flood-risk areas have found out how to stay safe in a flood, and just three per cent have prepared a 'flood kit' of essential items to use in the event of flooding, according to research. Ipsos MORI spoke to over a thousand adults in England and Wales who are living or working in properties identified as being at risk from flooding.

The Environment Agency is urging the public to face up to flood risk and be better prepared – especially as climate change could see the number of people in England and Wales at the highest risk of flooding increase from 1.5 million to 3.5 million by 2080.

Paul Leinster, Chief Executive of the Environment Agency, said: 'Many people don't believe that the small river or stream at the end of their road could pose a flood risk, but it could. More people are becoming aware of the risks a flood might pose, but



Flooding: what you can do

- Visit www.environment-agency.gov.uk to check if your property is at risk.
- Register with the Floodline Warnings Direct scheme. This free service automatically sends alerts by telephone, mobile, email, text, or fax to registered households as soon as a flood warning is issued. To sign up call 0845 988 1188.
- Put together a 'flood kit' containing: a torch, wind-up radio, mobile phone, rubber gloves, first aid kit, blankets, wet wipes or antibacterial hand gel, essential personal documents, insurance policy and emergency contact numbers.
- Check that your home and contents insurance covers you against flooding.

we are encouraging everyone to check our website to see if their house is in a flood risk area and to sign up to our Floodline Warnings Direct service.'

The Environment Agency has helped create a new £7.7 million flood forecasting centre to help protect people and businesses from flooding. Run by the Met Office and Environment Agency, the centre will improve the country's ability to predict and respond to flooding by

providing a single national forecasting and alert service. The centre is part of the Government's response to Sir Michael Pitt's review of the 2007 summer floods, which recommended that a better warning system was needed. Environment Secretary Hilary Benn said: 'In a flood, preparation and speed of response are crucial. A joint national flood forecasting and alert service will help by

'the centre will improve the country's ability to predict and respond to flooding'

providing timely warnings and ensure we get the right help to the people who need it most in the shortest possible time.' Since June 2007, the Environment Agency has built 54 new flood defences, increasing protection to more than 38,000 homes. A further 27,000 properties are likely to benefit from new or improved flood protection earlier than planned, following the Government's decision to bring forward £20 million of spending by a year.

Schemes that have been given the provisional go-ahead for 2009 and 2010 include:

- A comprehensive flood risk management plan for Sheffield. About 1,000 properties in the city were badly affected by floods in 2007. The new scheme will improve protection for 3,000 homes.
- In Deal, Kent, improved sea defences will help protect 3,600 homes from anticipated rises in sea levels.

- The construction of two pumping stations and a replacement tidal sluice in Barking and Dagenham, in London will form part of the flood defences needed to reduce the risk from river and tidal flooding to homes, businesses and vital infrastructure in the Thames Estuary.

Paul Leinster said: 'This is good news for communities at risk of flooding, as the Government's announcement will help us to start some schemes quicker. When completed, they will offer protection to 27,000 properties, a year earlier than otherwise would have been possible. 'We welcome the Government's commitment to increase funding for flood risk management to £2.15 billion over the next three years. Climate change will mean that the number of people at high risk from flooding could rise to 3.5 million by 2080 and we need to do everything we can to protect them.'

Visit www.environment-agency.gov.uk to check if you are at risk from flooding.

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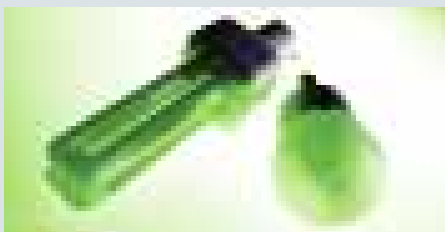
NEWS IN BRIEF

Binned bags

Seven supermarket chains are halving the number of plastic carrier bags given out this spring. The number of bags saved by this agreement is enough to fill 60 Olympic-sized swimming pools. Environment Minister Jane Kennedy said: 'This commitment will result in around five billion fewer bags being handed out. Supermarkets have already taken some imaginative steps to help us use fewer carrier bags and other high street retailers should look to them for inspiration.'

It's lights out for bulbs

Standard energy-hungry lightbulbs could be banned in Europe by 2012. The European Parliament is to consider a ban and could push it through by the end of March. Europe could save up to £10 billion a year on energy bills if energy-efficient bulbs were introduced. 'Incandescent bulbs will be phased out between September 2009 and September 2012,' said a spokesman for the EU Presidency.



Vatican's green halo

The Vatican is to install 2,400 photovoltaic panels on the roof of the Nervi Hall, where the Pope holds audiences and concerts are performed. The new system will enable the city-state to cut its carbon emissions by 225 tonnes a year. The Vatican reportedly plans to provide 20 per cent of its energy needs through renewables by 2020.

Portugal creates eco car buzz

Portugal is building 1,300 charging stations for electric cars, as part of an agreement with Renault and Nissan to promote zero-emission vehicles. Prime Minister Jose Socrates said he will also offer tax incentives on electric cars. 'The two main obstacles until now for people to choose electric cars were the price and autonomy. What the government decided to do is to create a framework was to exclude these two inconveniences for buyers,' he said.

Wealthy polluters should cough up

Rich countries must start compensating the victims of climate change or face multi-billion pound lawsuits over 'one of the most glaring injustices of our time', warns the environmental charity WWF.

A World Wildlife Fund (WWF) report, written by international lawyers, says that major polluting countries need to devise a compensation mechanism, possibly run by the United Nations, to pay for the impact of climate change on less developed countries. If they fail to do so, they will face a raft of legal cases from the victims.

The report points out that the world already has a range of international compensation schemes for nuclear accidents, oil spills, pollution of international waters and even damage caused by objects launched into space. 'In each of these situations, concerted effort among nations has successfully addressed compensation needs arising from transboundary environmental pollution,' the report says. But there is no scheme to compensate for damage caused by climate change.

While international agreements offer to help countries adapt to the effects of climate change, the report notes that 'funding is not available at the scale needed and the present regime does not include a means to address loss and damage due to climate change impacts'.

It adds that well-established principles of international law appear to support claims

for climate change damages. For example, the 'no harm' rule demands that all states should prevent damage to other states and holds offenders responsible for the cost of failing to do so. 'These rules of customary international law apply to climate change damage,' the report says.

It concludes: 'Claims by particularly vulnerable developing countries against specified developed countries, alleging violation of the no harm rule and seeking compensation, would have a firm basis in international law.'

Kim Carstensen, Leader of WWF's Global Climate Initiative, said: 'The possibility of legal action against major-polluting countries is increasing and could lead to a raft of complex uncoordinated legal cases. The international community can draw upon numerous legal principles and precedents from other areas and apply them to the climate change context.'

'Based on these insights, the outlook of facing legal action and obligations to pay compensation should drive industrialised nations to reduce this risk by rapidly reducing domestic emissions and by financing adaptation measures in the most vulnerable countries.'

Pay to save the rainforests

Wealthy nations should pay tropical countries billions of pounds a year to save their rainforests, according to a report commissioned by Gordon Brown. The money would be raised through donors and the global carbon market. Johan Eliasch, the Prime Minister's Special Representative on deforestation and clean energy, also recommended that by 2030 developing countries should start paying to help create 'carbon neutral' forests, with targets to reduce deforestation and promote tree planting.

Eliasch said: 'Saving forests is critical for tackling climate change. Without action on deforestation, avoiding the worst impacts of climate change will be next to impossible, and could lead to additional climate change damages of \$1 trillion a year by 2100. 'Deforestation will continue as long as cutting down and burning trees is more economic than preserving them. Access to finance from carbon markets and other initiatives will be essential to meet this challenge.'

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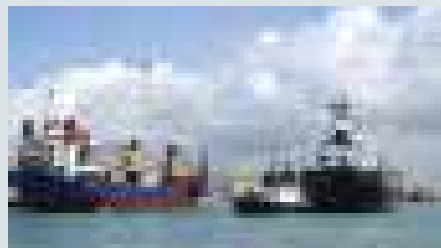
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NEWS IN BRIEF

'Keep it down up there'

Man-made ocean noise is putting the future of many marine species at risk, according to the International Fund for Animal Welfare. A new report says that ocean noise has risen dramatically in recent years, posing a major threat to many marine mammals that rely on underwater sound for communication, navigation and feeding. Commercial shipping, sonar, seismic exploration by the oil and gas industry, offshore construction and recreational activities are all contributing to the problem, IFAW says.



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Carbon calculator

Businesses can now work out the true carbon footprint of their goods and services, thanks to a new standard launched by the Carbon Trust and BSI British Standards. PAS 2050 provides a consistent way of counting the greenhouse gasses emitted through the lifetime of goods and services – from sourcing raw materials through to disposal.

2008 was a hot one

Last year was the tenth warmest year on record, according to the report from the World Meteorological Organisation. Global temperatures for 2000 to 2008 now stand almost 0.2°C warmer than the average for the decade 1990 to 1999. Dr Peter Stott of the Met Office said: 'Human influence, particularly emission of greenhouse gases, has greatly increased the chance of having such warm years. Global temperature is now over 0.7°C warmer than if humans were not altering the climate.'

New Environment Agency website

The Environment Agency has relaunched its website. The site is now faster, easier to navigate and more reliable at times of high usage - which is especially important during major environmental events such as floods. The new site also makes it easier for businesses to find out about environmental regulations. www.environment-agency.gov.uk

High maintenance

Hill farmers are to be paid to look after the natural resources, wildlife and character of England's iconic uplands.

Hill farmers in England are to be rewarded for maintaining and improving biodiversity and natural resources, and for maintaining iconic features such as dry stone walls and stone-faced hedge banks.

The Uplands Entry Level Stewardship will replace the Hill Farm Allowance. The new scheme, being introduced in 2010, is designed to make sure that farmers are rewarded for their role in maintaining England's uplands, such as the Cumbrian Fells, Dartmoor and the Peak District.

Environment Secretary, Hilary Benn said: 'The uplands are absolutely fundamental to the English countryside. So much of our history, our art, our literature and our sense of identity are tied up in these glorious landscapes, and it is right that we should ensure that farmers are rewarded for looking after them.'

'Many uplands farmers already provide these benefits, looking after the wildlife and natural resources, mending dry stone walls, ensuring that grazing helps the landscape, and looking after historic sites. Through this new scheme, we'll be able to recognise and reward their commitment and encourage and support others in joining them.'

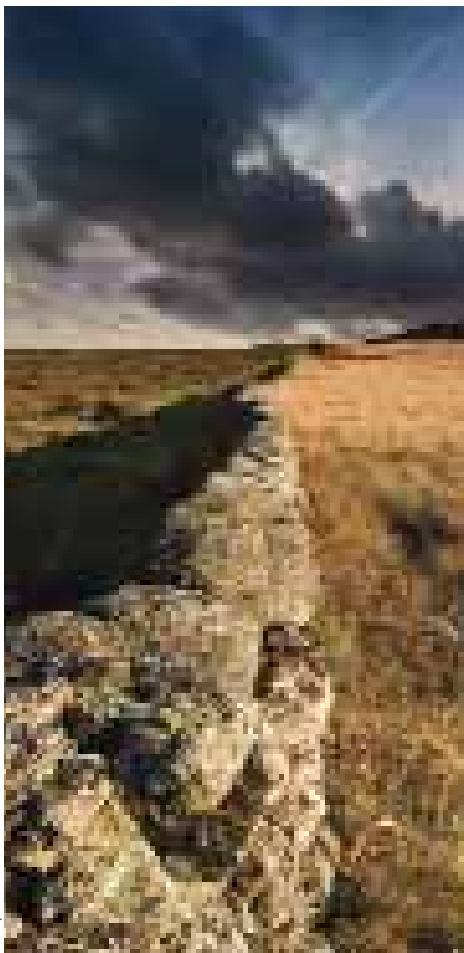
Dr Helen Phillips, chief executive of Natural England, said: 'Uplands are inspirational places and provide vital environmental services such as improved water quality, flood prevention and carbon capture.'

'Farmers and land managers in the uplands are at the forefront of this crucial work and this new strand of Entry Level Stewardship enables us to recognise their crucial environmental role while supporting their businesses.'

Vice President of the National Farmer's Union, Paul Temple, said: 'Hill farming is vital to the landscape and wildlife of Britain's uplands. Without continued livestock grazing by sheep and cattle many of our National Parks and Areas of Outstanding Natural Beauty would be unrecognisable and inaccessible to the public. This scheme will be vital help for hill farming at a time when incomes have slumped to a 10-year low of £6,000 per farm. It is entirely right that Upland ELS should provide additional payment for the extra commitment hill farmers make to protect and manage Britain's most hostile farmed landscape.'

Chewing over food policy

Hilary Benn has set up a new organisation to advise him on all aspects of food policy. The Council of Food Policy Advisors will work on a wide range of food issues – including production, retail, regulation, affordability and the industry's environmental impact – and try to ensure that the UK's food supply is as secure and sustainable as possible. The body will be chaired by Dame Suzi Leather, who used to work for the Food Standards Agency. 'The members of the Council provide experience from right across the food chain, including farming, retail, community food initiatives, and consumer groups,' said Benn.



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Just the ticket

Local councils and bus companies across Europe will have to buy more fuel efficient and less polluting vehicles following a decision from the European Parliament.

Members of the European Parliament have backed a new directive that will force local councils and bus companies to look at the environmental impact of new vehicles, including energy consumption and emission levels. Until now they have only had to consider cost. 'As a result, not only the price of a vehicle, but also the impact it creates during its lifetime for the environment are reflected in the purchase decision,' a statement from the European Union said. 'This will reduce fuel consumption as well as carbon dioxide and pollutant emissions from road vehicles.'

Local governments in the EU buy around 110,000 cars, 110,000 vans, 35,000 lorries and 17,000 buses every year.

European Commission Vice-President Antonio Tajani said: 'This agreement marks an important step forward in the energy, climate and environment policies of the European Union. The public sector in

Europe will set an example by promoting new and better vehicle technologies for a future sustainable transport system. This sends a clear signal to the market and to the citizens on the competitive value of technologies which save energy and protect the environment.'

The EU believes that its new directive will have an important impact beyond local authorities. Its statement said: 'Public procurement is a key market of high visibility and can lead the decisions in business and private sectors. The Directive is expected, over the long term, to result in a considerably faster and broader market introduction of clean and energy efficient vehicles and in a reduction of their costs through economies of scale. This will then contribute to improve energy efficiency, and reduce carbon dioxide and pollutant emissions of the whole vehicle fleet in Europe.'

USA's most wanted list for eco-fugitives

More than 50 years after the FBI launched its 'most wanted' list, the USA's Environmental Protection Agency has launched an eco-version.

The criminal investigation division of America's Environmental Protection Agency (EPA) has published a list of 23 fugitives accused of everything from smuggling harmful chemicals to dumping toxic waste.

'Putting this information on the EPA's website will increase the number of 'eyes' looking for environmental fugitives,' said EPA spokesperson Granta Nakayama.

'Two fugitives were captured this year, and this site could help us find more in the future.'

The website provides a brief summary of the case against each person, a copy of their 'wanted' poster and details of their suspected whereabouts. But it also warns: 'Do not attempt to apprehend any of these individuals.'

Instead, people with information are advised to contact their local police station, the nearest United States embassy if they are abroad, or fill in an online Fugitive's Location form.

www.epa.gov/fugitives



Will globetrotter inspire the car industry?

Swiss teacher completes first ever round-the-world trip in a solar-powered car.

A 36-year-old teacher from Switzerland has completed the first ever round-the-world trip by solar-powered car. Louis Palmer ended his recent 32,000 mile trip at the venue of the United Nations (UN) climate change talks in Poznan, Poland, with Yvo de Boer, the UN's most senior climate change official, in the passenger seat.

Palmer said he hoped the journey would inspire carmakers to make greener models. 'The car ran like a Swiss clock,' he told reporters, adding that he had lost just two days to repairs since leaving Lucerne in July 2007. 'People love this idea of a solar car,' he said. 'I hope that the car industry hears and makes electric cars in future.'

The car has a top speed of 55 miles per hour and it took Palmer 17 months to travel through 38 countries. To travel at night, he used a battery charged using local electricity.

Palmer is now hoping to travel around the world in 80 days, using vehicles powered by sustainable forms of energy, including hydro, geothermal and wind.

BLUFFER'S GUIDE TO...

Diffuse pollution

The word 'pollution' conjures up all sorts of images - green foam floating on streams, city centre cyclists choking on car fumes and overturned lorries shedding their loads onto the nation's highways. But what is 'diffuse' pollution?

Diffuse means 'to spread widely or thinly'. And if you're talking farming, diffuse pollution is all those small amounts of nutrients, pesticides and soil that escape from farms to local streams, lakes, rivers and coastal waters. You could call it a blanket name for lots of little pollution incidents that add up into one big problem.

But why pick on farmers? Shouldn't you be dealing with big industry too?

Yes, all industries produce some form of emissions to air, land or water. And there are very strict legal measures in place to control these emissions.

But farming covers about 85 per cent of the total amount of land in England and Wales. This is a huge area. And it doesn't happen on a smooth factory floor either. Agriculture is a natural system - an interaction of soil, water, air, plants, animals and nutrients. When you add things like the weather to the mix it's not as easy to control your emissions.

Agriculture is a significant source of pollutants, such as phosphates, nitrogen, pesticides and silt (soil). Most farmers really know their stuff, but it's the minority who are currently following 'best practice' who we think could really make a difference.

OK, before we go any further can you explain how phosphates get into watercourses?

Phosphates can be released into the environment from many industrial processes. Farmers in particular use them to provide their crops with nutrients. Slurries and manures are naturally high in phosphates, soil contains them and you'll find them in manufactured fertilisers.

They usually get into the water by hitching a ride on the back of some soil. This usually happens when bad soil management causes the soil to erode and it washes into nearby watercourses. Once they are in there, they can dramatically affect the quality of the water.

Does the weather play an important part in this?

Absolutely. Rainfall easily washes phosphates (along with other nutrients and pesticides) into watercourses. Increased nutrient levels can then damage the water's eco-system and disrupt the food chain which supports the fish, animals and birds that rely on it. Climate change is expected to bring sharper and heavier rainfall in future, so this is something that all farmers will need to adapt to.

So what should farmers be doing to prevent diffuse pollution?

Two very important things. Firstly, preventing soil erosion or compaction through good soil management. Soil erosion is caused by one or a number of

things including animal and crop production on unsuitable land, overstocking, bad timing of agricultural practices, stock trampling down river banks and lack of ground cover (crops) in winter months. This stops any water (usually rain) getting through the hard soil and it runs into nearby watercourses - this is called run off - and takes any nutrients with it.

Secondly, farmers need to make sure that any nutrients they apply are taken up by the crop. This means applying them at the right time, at the right quantity and in the right place. Just doing these two simple things will do the job.

Find out more about diffuse pollution at www.environment-agency.gov.uk



Muck spreading: at the right time, in the right quantity, at the right place

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Health flies high with parklife

Access to parks, playing fields and forests can greatly reduce the health gap between rich and poor people, academics from the University of Glasgow have found.

Researchers found that in the greenest areas of England the health gap between the richest and poorest people was about half as big as that in the least green areas.

'The implications of this study are clear: environments that promote good health might be crucial in the fight to reduce health inequalities,' their report concluded.

Dr Richard Mitchell from the University's Department of Public Health and Health Policy, who led the study, said: 'Not everyone has equal access to green spaces, but when people do have access they tend to use them, regardless of what part of the social spectrum they are from. This has a direct impact on their health.'

He continued: 'Obviously, resources must still be ploughed into trying to narrow the

inequality gap between rich and poor, and with that will come advances in the population's general health. However, we would encourage the Government to consider carefully what their policy on green spaces is and to bear this research in mind when planning urban areas for the future.'

He added: 'Separate studies have shown that children whose parents take them to green spaces, like woodlands and parks, are more likely to replicate that behaviour with their own children, leading to the healthy lifestyle being passed from generation to generation.'

The researchers assessed the health impact of parks, playing fields and forests by dividing England into five areas, based on the amount of green space, and comparing the death rates between rich and poor in each.

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STAR LETTER ★



It was good to read about the unsung heroes who volunteer as community flood wardens The Duchess of Duke Street, (*Your Environment*, Issue 21). I too was living in West Oxford during the floods of summer 2007, and received a knock on my door to tell us that we may need to evacuate. Luckily we didn't have to, although we spent half a day moving everything upstairs. The work of Mary and people like her is invaluable in such situations, helping to let people know what they need to do, and when. It was good to hear all about the work she does on behalf of the community she lives in.

It would be good to read

more about flooding in any future editions of *Your Environment*. I, for one, am always interested to hear about what is being done about this increasingly common problem and what kind of things myself and other people can do in order to help themselves.

*J Davison
Oxford*

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Misery needs company

I can't help but feel that Richard Cookson spent a pretty miserable week as an 'eco-saint' (*Your Environment*, Issue 19) for no valid reason, other than to give ammunition to the climate change deniers and nuclear fuel lobby.

In a greener economy, there would be more local shops and services, reducing the need to travel. Rising food and fuel prices will make UK agriculture and manufacturing more competitive, reducing transport emissions. When travelling is truly necessary, major investment in public transport and cycling infrastructure would make the kind of experience Richard endured the exception rather than the rule.

Our houses would be better insulated as a result of investment in existing housing stock, and district heating and power plants would provide our energy needs from renewable sources.

If we're serious about living

in a green society, we have to demand communal and state action at the ballot box rather than relying on individual effort and well-meaning, but largely ineffective, sacrifice.

*John Macefield
Sandwell Green Party
West Bromwich*

Too much hot air?

'Are you green with worry?' (*Your Environment*, Issue 21) was very interesting in describing the problems of climate change and suggested that we all 'think positively'. Fred Pearce offers ways to solve this crisis, and then goes on to describe the certain changes that are required to replace fossil fuels.

He is far too optimistic in believing that wind and solar power can provide a solution. In this country they are both too unreliable to provide a constant supply, and in any event their output would only provide for a fraction of total demand.

We therefore require a positive alternative energy supply from perhaps tidal and sea wave power or nuclear, which would also be free from damage to our climate.

*Mr P F Parker
Nottingham*

Invasive species

With reference to your article, 'Block Entry to Non-Native Species' (*Your Environment*, Issue 20), Defra may be drawing up a plan to identify these invasive species but how do we, the ordinary man and woman in the street, recognise them?

Surely Defra needs all the help it can get in locating these invaders? But although mink and Japanese Knotweed are easy to identify, I for one do not know what Azolla fern looks like or which animals and plants are classed as invasive.

Surely the public needs to be made aware of the appearance of these troublesome, non-native species and the procedures in place to deal with them.

And what about the next wave of non-native species, such as the stowaway spiders in imported fruit which are now surviving our warmer winters? Could there also be the problem of interbreeding? Are we going to end up with hybrids which are equally invasive?

I know this involves a great deal of research, but those of us outside Defra should be kept aware of what is out there and what we are permitted to do.

*Patricia Unsworth
Bolton*

A little bird told me

I read with interest your article

(*Your Environment*, Issue 21) about the worldwide decline in common birds.

It certainly bears out what I have noticed over the years. Where once gardens, even in cities, were alive with birdsong from many different types of birds they are almost silent now.

I do see wood pigeons quite a lot and sometimes the odd robin but these do not sing and make the trees come alive.

Birds are known to be the first species to notice environmental change so we should be very aware of what they are telling us. I am pleased that we can do something to about reversing the trend and hope that the Government takes this seriously.

The issue was very thought provoking in that it examined the problems but at the same time gave us an optimistic outlook that we can make a difference.

*Victoria McVicar
London*

Happier climate

It was lovely to read some less depressing stories about climate change in the recent edition of your magazine (*Your Environment*, Issue 21).

So much of the media stories that we hear (to do with anything, not just the environment) are laden with bad news and just serve the scaremongers and people who can't be bothered to change things because they 'don't see the point'.

But a positive attitude in life can completely turn things around. And it was lovely to find good things to think about. Like the fact that we could inject some life back into our bird populations and even new types of drainage for goodness sake (when did drainage become interesting?) Thank you for giving me some peace of mind.

*S Clive
Cornwall*



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Court in the act

Find out who's been breaking environmental laws in this run-down of the latest prosecutions, from illegal waste to milk pollution.

Plastic milk bottle manufacturer pleads guilty and receives £56,000 fine

A packaging company has been fined £56,000 for failing to comply with recycling laws. Blowplast Limited, based at Sands Industrial Estate, High Wycombe makes plastic bottles for the dairy industry.

Under the Producer Responsibility Obligations (Packaging Waste) Regulations, companies that have an annual turnover in excess of £2 million and handle more than 50 tonnes of packaging a year must register with the Environment Agency or a compliance scheme. They must also provide evidence of payment for recovery and recycling of a proportion of wood, aluminium, steel, cardboard or plastic packaging.

Blowplast pleaded guilty to failing to register with the Environment Agency, and meeting its requirements to recover and recycle packaging waste between 2000 and 2006. The company avoided estimated costs of £52,083.52 by not registering and purchasing the correct amount of Packaging Recovery Notes. It was ordered



to pay a fine of £56,000, compensation of £6,104, £1,805 in Environment Agency costs and the Government's surcharge of £15.

Sue Gebbels, investigating officer for the Environment Agency said: 'Blowplast Limited manufactures packaging and should have been aware of its obligations. These regulations were introduced in 1997 and it is disappointing that a number of companies are still not compliant.'

Illegal site deposited and burnt waste

An illegal waste site in Essex that broke the law for almost a year despite warnings and guidance from the Environment Agency has been fined £171,000 and ordered to pay almost £6,000 in costs.

Haigh Contracts Limited pleaded guilty to a number of offences when waste was deposited, kept and burnt without a waste management licence or exemption certificate.

The illegal operation first came to light in February 2007 when someone called the Environment Agency alleging that asbestos had been taken to Amigers Farm in Thaxted, the site of the company's operations. An investigation revealed a number of wastes at

the site and areas where waste had been burned. Further visits revealed that more waste was being brought onto sites.

Anne-Lise McDonald, prosecuting, said: 'Haigh Contracts Ltd was aware of the need for a waste management licence. There is no suggestion that the activities would have ceased.'

Milk pollutes local stream

A Somerset dairy company has been ordered to pay £9,000 in fines and costs after milk escaped from a cheese factory and polluted a stream. More than 70 fish including brown trout and bullhead died after waste from Higher Alminstone Farm, Woolserly entered a

tributary of the Dipple Water. The farm is the main processing site for cheese manufacturer Parkham Farms Limited.

An investigation revealed a member of staff, unfamiliar with the farm's waste treatment plant, had accidentally switched on a valve which caused a storage tank to overflow.

'Milk waste can be very harmful when it enters rivers and streams because it strips the water of oxygen causing fish to suffocate,' said Andrew Leyman for the Environment Agency.

Chicken carcasses spread on field

A company has been fined £12,000 and ordered to pay £4,300 in costs after spreading animal waste onto fields, including chicken feet, heads and carcasses.

Frank Bird (Poultry) Limited illegally spread the waste on land at Maughanby, Cumbria. The Environment Agency investigated after complaints from local residents.

Spokesman Jonathan Shatwell said: 'This is a serious incident, which had the potential to cause widespread environmental damage. The company concerned was well aware of the regulations, which cover the spreading of surplus sludge for agricultural or ecological improvements.'

Laundry firm takes too much water

The laundry firm Sunlight Service Group Limited has been fined £18,000 and ordered to pay £2,494 costs for the over abstraction of water. The company from Fakenham, Norfolk, was also charged with failing to record meter readings as specified in its abstraction licence.

The company has a licence to take groundwater from boreholes within limits imposed to restrict the effect on the River Wensum, a designated Special Site of Scientific Interest and European Special Area of Conservation.

But problems came to light on an Environment Agency inspection, which uncovered company records showing the daily abstraction rate had been exceeded several times.

Farming's new breed

There's a new generation of farmer in the making. Some will learn their craft at Bishop Burton College Farm. **Colin Dennis** is the college's Director of Agriculture. He knows his stuff and predicts a return to the old ways of the land for farming's new wave.

Bishop Burton College is situated in the picturesque village of Bishop Burton to the west of Beverley in East Yorkshire. The college has 1,400 full-time and 4,000 part-time students, studying subjects ranging from agriculture and equine studies to construction, art, design and fashion. The students look after the college's crops, dairy cows, sheep, pigs and horses on this 362 hectare working farm.

The majority of students come from agricultural backgrounds. But more and more of them are starting to come from non-farming backgrounds. 'We have a couple from the middle of Leeds who just developed a real interest in animals and food,' explains Colin Dennis, the college's Director of Agriculture, .

People like Hugh Fearnley-Whittingstall and Jimmy Doherty ought to receive a pat on the back

for the surging interest in growing-your-own and animal husbandry, but school syllabuses also play a role says Colin. 'A lot of the school kids who come here are very interested and concerned about sustainability, environmental degradation, animal welfare, food quality, food safety, general health and well-being.'

Colin teaches them how to work the land, make a profit, follow their principles and moulds them into the farmers of tomorrow. The mantra at Bishop Burton is sustainability. 'It's all about sustainability,' explains Colin. 'Being profitable and sustainable go together. But it's still a very challenging economic climate out there. Farmers need to develop a whole range of skills to prosper.'

That said, Colin thinks the industry is a safe and fairly recession proof one. 'People stop

buying what they can do without in a recession,' he says. 'But people can't do without food. So agriculture is traditionally a good industry to be part of during difficult economic time.'

The college receives an annual bursary from the Environment Agency, which it uses to develop student projects. 'Last year's subject was Nitrate Vulnerable Zone (NVZ) compliance on farms throughout Yorkshire,' explains Colin.

NVZ's are areas where there is concern that nitrates will leak into local watercourses. Once in the water nitrates can wreak havoc with the natural eco-systems and play around with vital habitats.

'Students visited about 10 farms to study and identify NVZ issues,' explains Colin. 'They looked at soil management and checked farms had enough storage for slurry and manure prior to spreading it. They also looked at spreading the slurry, because if you spread it in wet conditions you can make a mess.'

As these students become farmers the pressure on them looks set to mount. 'Farmers are expected to produce more and more with less. Most European agriculture consumes more energy than the food it produces contains. 'That's fine while there's lots of cheap oil to pump out of the ground,' explains Colin. 'But that's going to have to change.'

Visit www.bishopb-college.ac.uk to find out more.

NEED TO KNOW... 10 things you need to know about soil

Soil grows food and fibre, regulates water flow and quality, stores water, provides minerals and raw materials, is a platform for the landscape and all human development, holds much of our cultural heritage and is where the majority of the earth's living organisms live.

1. Soil takes thousands of years to develop. It may take 500 years to form one centimetre of new soil. But it can be destroyed in very short periods of time. In effect it is non-renewable.
2. An estimated 23 per cent of the world's usable land area has been degraded to some extent, mainly by soil erosion.
3. Sixteen per cent of EU land area is affected by some form of soil degradation.
4. Soil is nature's water filter. Healthy topsoil can reduce the concentration of any pesticides in drainage water by 99.9 per cent.
5. Soil is a natural recycling centre: every year the soils of England and Wales recycle the nutrients and carbon from 110 million tonnes of livestock excreta.
6. More than half of the world's known species live in soil: numerically, more organisms live below ground than all the plants and animals above ground.
7. UK soils store 10 billion tonnes of carbon.
8. Earthworms are vital to soil health. They aerate it and incorporate organic matter. Over 2.5 million live in an average hectare of farmland.
9. By 2016 another 1.3 per cent of England's soils could disappear under development.
10. Leonardo da Vinci said, 'We know more of the movement of celestial bodies than about the soil underfoot'. This is still true.



Farm director Colin Dennis and farm manager Dominic Naylor take a look at the harvested maize

The green challenge: Green curve of the Arque continues

Tracey Smith visits Arque Construction, for the second instalment in our year-long journey with the company, as it starts putting all of its planning into practice.

Bernard Keogh, Arque's MD, is an amiable, forward-thinking boss who is very connected to his workforce. After two decades of experience in construction management, he started the company to provide a personal, co-operative approach to building quality projects.

Bernard is determined to raise the Arque to an even more environmentally efficient standard and was delighted to receive the Green Accord from Exeter City Council recently, in recognition of their early efforts.

A company's environmental performance can have a significant impact on its success, its bottom line and the customers it bags too. ISO 14001 is the internationally recognised standard for Environmental Management Systems (EMS), which lays a framework for ways of working that combine pollution prevention and increased eco-efficiency on every level of operation.

Achieving the Environmental Management Standard (EMS) will need more than Bernard's committed and solitary vision driving it. So he welcomes input from all of his staff. He explains, 'We're approaching EMS as a team. I spent critical, unhurried time during the planning phase to ensure we



Arque's amiable MD,
Bernard Keogh

all made the right decisions on what we were doing to improve things long-term.'

The construction industry sends vast amounts of waste to landfill and Arque's

initial investigations flagged up the areas of waste management, along with transport, to work on first.

Bernard appointed Paul Bennett, Arque's estimator and quantity surveyor to co-ordinate and collate information. Sue Keogh, the company secretary, was also drafted in for additional support. Despite having to fit the extra workload into their busy schedules, they seem to be taking to their new roles well and both share an upbeat approach to the problems it presents.

The majority of Arque employees work on-site. So one of the early tasks was uniting everyone and conveying the common purpose. This was simplified when the green team created *10 Golden Rules* to abide by. They were compiled using *EMS Easy*, a set of simple guidelines laid out by Global Action Plan, the company's environmental consultants. It uses simple visual tools like eco-mapping and helps companies to personalise the process and have a real ownership of 'their' EMS.

Golden rules For our health, our business and our children's planet:

- Decide whether that journey is really necessary.
- Deal with that spill, leak or waste water - don't just leave it to pollute.
- Take care to segregate your waste - landfill is bad news.
- Keep surplus materials and store them carefully.
- Use products and equipment that cause the least environmental impact.

Global Action Plan has worked with over 60 major organisations and their employees on environmental behaviour change and Arque's advisor, Tom Kennard is delighted with Bernard's steady approach. 'Environmental, financial, social and human capital all play key roles in long term sustainability, which should be the goal of any company,' he said. 'Arque will spend the next quarter implementing the systems they have designed so far on a practical level.'

I ask Arque's eco-advocate Paul Bennett how the nitty-gritty practicalities of the EMS are affecting staff morale back in the office. 'It's going very well,' he says. 'Actually, we've all been pleasantly surprised by how well the on-site staff have taken to things. During 'tool box talk', the guys were really positive. To be honest, we thought they'd be the hardest ones to get on board. But I overheard colleagues talking at the printer the other day, one asking the other why he'd only



Getting on with the day job

'One of the early tasks was uniting everyone'

printed on one side of the paper when it should have been double-sided'.

I wonder whether it has inspired Paul to live more sustainably at home. 'No, not really,' he replies, 'I've been a green crusader there for a long time'.

Upping the green game takes more than putting a few procedures in place. In good

time attitudes change too. Wasteful bad habits are soon ditched and optimistic behaviour emerges, which can have a positive impact on everything, including the bottom line.

For further information:

www.Arque.co.uk

www.GlobalActionPlan.org.uk



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Guardians of the land

British farmers are the custodians of the countryside. But every day their farm businesses face increasing pressure - from all quarters - to produce top quality food, at competitive prices in an ethical way. **Gaina Morgan** investigates.

UK farmers are under pressure as never before. They are constrained by regulations, cash flow and demands for cheap and high quality food.

Farmers must meet government standards for animal health and welfare, public health, plant health and the environment. For instance, they must tag and identify their animals and keep herd registers for cows and flock records for sheep.

Some farming schemes pay farmers to farm organically or in an environmentally sensitive way. These schemes also have requirements, along with the general environmental standards that all farmers must meet.

Keeping their paperwork up-to-date is often not enough either. Farmers need to be prepared for inspections that check they meet all the requirements. These requirements are frequently revised and farmers need to keep abreast of the changes or risk fines and other penalties. Depending on the type of holding, a farmer has to work with many organisations, from government agencies, to vets, animal health organisations and specialists in particular sectors, such as the Soil Association for organics. Add to the equation that these different organisations rarely share information and this can be frustrating for farmers.

Then there's the constant threat of animal disease - testing stock and

vaccinating can steal valuable time on a large farm. If there is an outbreak of foot and mouth, or a positive test for bovine tuberculosis, stock must be slaughtered. This is both emotionally and professionally devastating for farmers who have spent years building their herds and flocks.

Finding someone to buy their stock or crops at a fair price is another big challenge. Whether they are selling direct at market, to local businesses, large supermarket chains or food producers, supply chains can be difficult to break into. Consumers increasingly want to know where their food comes from and how it has been produced, so farmers need to accommodate this, whether that means using organic fertiliser

or using their photo on packaging.

Yes, modern farmers must be multi-skilled – accountants, scientists, ecologists and vets. They must also be adept at marketing, negotiating, and IT. The big problem is that, in a global economy, many UK farmers feel they are being priced out of the market by higher animal welfare costs and environmental considerations. But it's vital that farmers realise how much their business can benefit from better environmental management and it's crucial that consumers are aware of the costs involved. It's a big ask, but the most progressive farmers have risen to the challenges and created opportunities.

Furthermore, farming uses and produces substances that can harm the environment. Failure to contain pesticides, slurries, fertilisers and eroded soil, can, and does, cause serious pollution. By working closely with the industry, using the environmental regulations that govern storage and farming practices, the Environment Agency has seen the numbers of on-farm pollution incidents drop dramatically in recent years.

According to Paul Leinster, the Environment Agency's Chief Executive: 'Such incidents do still infrequently occur, with serious consequences, but the industry as a whole deserves credit for the improvements it has made.'

He also says that there are superb examples of farmers improving how they manage soil, nutrients, manures and slurries. These farmers recognise that they are improving their business returns as well as protecting the environment.

'We understand the importance of having a viable business and what we ask farmers to do is almost always positive in terms of returns to their business,' he says. 'We want to work in partnership with farmers. One of our key roles is to give advice and guidance. Prosecution is always a very last resort, for a minority.'

In Malvern, where farmers were badly hit by last summer's flooding, Jim Bullock found the measures that he and his family took to counteract soil erosion and run-off improved their ability to cope. Direct drilling methods made the land more stable and water was able to filter through the soil. This meant the family was able to get back onto its land sooner.

Although the crop's quality suffered, they were still able to harvest wheat for

'Direct seeding has also brought lots of environmental benefits. Leaving crop residues on the soil's surface protects the soil. You get less soil erosion and this means fewer pesticides and excess fertiliser getting into the watercourses. You also get a build-up of earth worms and natural flora and fauna that encourage wildlife, mainly birds, onto the land. Snipe and woodcock have come back where I haven't seen them for years.'

Ross-on-Wye farmer John Chinn produces potatoes and asparagus. Because he sells to Marks and Spencer, Tesco and Sainsbury, he is acutely aware that customers are increasingly interested in the farming techniques he uses to produce their food. But he also has to make a living on sloping fields of sandy loam soils, which are

'the industry as a whole deserves credit for the improvements it has made'

bread making. The farm also produces oil seed rape for vegetable oil production and field beans for export to Middle Eastern countries.

'Our approach has really been driven by economics', says Jim who farms with his brother and father at Mill Farm. 'We were driven by costs in the early nineties when savings were necessary but this is even more so now.

prone to things like run-off.

A £9,000 fine for pollution of watercourses, caused by major soil loss following heavy rain, meant that John had to find a new approach. He was forced to accept that some of his fields couldn't support potato crops because the risk of erosion was too great.

'The potato crop is an important part of our farm rotation but immediately after

Managing flood risk on farms

The Environment Agency is keen to work with farmers and land managers to reduce flood risk. Flood and coastal risk management policy advisor, Amy Parrott says, 'creating woodlands and water meadows, loosening compacted soil layers and preventing livestock from wearing away banks all help local flood management.'

'Every catchment area has different characteristics. Soil composition, surface

gradients and the intensity and duration of rainfall all have an influence. What works in one catchment will not necessarily be successful elsewhere'.

The Environment Agency is carrying out research to learn more about the effect of land management on large catchments so that future policy is shaped responsibly. It is also helping farmers and landowners to learn how certain land management practices can prevent flooding locally.

Plenty of farmers also continue to help themselves. Machinery Rings allow members to use expensive equipment and environmental resources cost-effectively. They can also benefit from group purchases, business services and training.

The Country Land and Business Association has an online carbon calculator to help farmers and land managers. Already used by more than 200 farming businesses, the calculator works out greenhouse gas levels generated by the business and how much carbon is stored in trees and soil.

Sheep farmers in Pontbren, Powys, mid-Wales, set up a co-operative to focus on farming in a more environmentally

planting each field we go in with a special blade to lift and loosen the compacted soil in the furrows between the rows of potatoes', he says. 'Water that runs off the potato rows during rain or irrigation is now absorbed, reducing run-off and soil erosion and maintaining soil moisture.'

The Environment Agency sees many good examples of farmers changing their practices to benefit the environment. Current work with farmers focuses on better soil and nutrient management, as well as finding ways to reduce diffuse pollution.

Many farmers, encouraged by supermarkets such as Waitrose and Marks and Spencer, use caring for the environment as a marketing tool. Beef and sheep farmer Gethin Havard is Vice Chairman of the marketing arm of the Brecknock Hill Cheviot Sheep Society.

'It's on the back of our environment that we market our lamb because it's perceived as coming from a beautiful part of the country,' he says. 'Our farming methods are very traditional and it's a bonus in terms of being able to promote our product.'

Meanwhile, National Farmers' Union President Peter Kendall is calling for Britain's biggest retailers to take a new approach to corporate social responsibility. He challenges them to abandon 'outrageous bully-boy tactics' and opt for a fair and responsible food chain that acknowledges farming and puts fair pricing for both customers and suppliers at the heart of their retail policy.

The British food industry contributes £80 billion to the economy and supports 3.6 million jobs. It also shapes the



'The British food industry contributes £80 billion to the economy'

environment, contributes to biodiversity and preserves natural resources.

Industry consultant and farmer Theresa Wickham says the situation is improving as retailers recognise the importance of food security. Dairying and horticulture are areas where supermarkets are working with farmers to address animal health and environmental considerations, such as carbon measurements.

conscious way. They have planted more than 100,000 native trees to encourage biodiversity, restored hedgerows and created ponds on their land.

Initiatives like these prove that the environment is uppermost in farmers' minds. The environment is their place of work, their valuable resource, their pride and their joy. The challenges they face are sometimes exasperating but the solutions are rewarding and UK farmers continue to find new ways of responding.



Gaina Morgan is a journalist, broadcaster, farmer and Associate of the Royal Agricultural Societies of the United Kingdom.



Harvesting H₂O

Richard Cookson finds out why water is fast becoming the new crop in agriculture.

Growing high value crops without a guaranteed water supply can only be described as commercial suicide,' says Robert Smith, a vegetable farmer from Duxford in Cambridgeshire. 'In the early 1990s we were subjected to a total ban on irrigation abstraction halfway through the growing season – that was a disaster. It became clear that we needed to secure our water supplies in order to protect our business.'

Smith is one of a growing number of farmers who are realising that they need to ensure they have enough water to keep their farm in business. Traditionally, farmers have relied on rivers or boreholes as sources of water for irrigation. But, despite what most of us think about the British weather, parts of the country, particularly the south-east, are now facing long-term water shortages. In many areas, farmers can only abstract water when there has been sufficient rain – but it's precisely when rain is scarce that they need it most to irrigate their crops. With supermarkets demanding high quality produce delivered to an exacting schedule, running short of water for irrigation can result in the kind of financial losses that many farms can ill afford.

The likely impact of climate change – hotter drier summers and increasing competition for dwindling water supplies – is likely to make these problems worse. In a recent study, scientists assessed the possible

impact of climate change on the Vale of Evesham in Worcestershire, an area famed for its horticulture. Their report concluded that in a 'dry' year demand for water to irrigate crops such as potatoes, vegetables and fruit would increase by 25 to 50 per cent by the 2050s and as much as 84 per cent by 2080s. 'Irrigation conditions in central England may become more like the south east of England by 2020,' says Environment Planning Officer, Anne Taylor, from the Environment Agency. 'By 2050, central and southern England may be more like today's climate in central or southern Europe.'

That's why the Environment Agency is working with farmers to help them secure more reliable water supplies by promoting a 'twin-track' approach to water security – encouraging farmers to use their water wisely and efficiently and if that is not enough, helping them to develop new resources.

Building reservoirs is one option farmers are being encouraged to consider. The idea is

operating simultaneously but 18 other local farmers will also be able to share the water. For Smith it's all about security. 'Once it is in the reservoir, it is our water,' he says. Even during a drought, his farm will be able to grow without concerns about crop failure. 'Water is only going to become more expensive and less reliable. In my opinion, we should be filling all the holes we dig with water, not using them as landfill,' Smith adds.

Building a reservoir is, of course, a major undertaking. Most take between two and three years from concept to completion, and involve getting planning consent and carrying out environmental assessments, which can all take time. 'The process can be quite complicated,' says Lynsey Craig, Agriculture Officer from the Environment Agency's Anglian region. Rainwater harvesting for farmers is another way of securing their water supply. This involves collecting rainwater that falls on farm building roofs and storing it in a tank, often underground.

'18 other farmers will also be able to share the water'

simple: a farm builds a small reservoir that fills up in the winter, or during heavy rains in the summer, and uses the water during dryer months. Reservoirs not only secure a farm's water supply but can also save money too. Charges for abstraction during the winter months are a tenth of the cost in the summer.

Robert Smith started work on his 110 million gallon reservoir and 24 kilometres of pipework last year. It not only has the potential to supply 10 irrigation machines

'This method is likely to appeal more to dairy farmers,' says Taylor. 'Rainwater collected can be used for a number of on-farm uses. Case studies have shown that payback can be very good – it can reduce a farm's mains water bill considerably.'

Thinking about an irrigation reservoir? is available at www.environment-agency.gov.uk. A booklet on rainwater harvesting in agriculture will be available later this year.

This is planet earth

Fred Pearce takes us on a fascinating journey into the soils that lie beneath our feet - to explore one of the most underrated, and yet so valuable, resources we have.

As Arthur Fallowfield, one of Kenneth Williams' many alter egos, frequently attested, 'the answer lies in the soil.' The comedy catchphrase has stuck, in my mind at least, because it is very true. Soils nurture and sustain, they germinate the new and reclaim the dead. The answer to all the great planetary issues of the day – from feeding the nine billion to climate change, from preserving biodiversity to maintaining the health of our rivers and oceans – may well lie in how we manage our soils.

Soils are the sleeping giants of climate change, for instance. They contain 300 times more carbon than humanity emits every year by burning fossil fuels. Much of that carbon is in peat bogs, but all soils are rich in organic carbon. And destructive farming practices, whether over-ploughing or draining peaty wetlands, empty the soils of carbon, releasing carbon dioxide into the air. They may be responsible for 10 per cent of man-made global warming, and unless practices change the emissions will continue to grow.

Guy Kirk at the UK's National Soil Resources Institute at Cranfield University recently estimated that our soils lose 13 million tonnes of carbon a year – equivalent to eight per cent of our total fossil fuel emissions. Some of this happens as soils are eroded; some as fields are ploughed and organic matter is exposed and oxidised to carbon dioxide; some is the result of warmer temperatures speeding up soil metabolisms. Which influence dominates is far from clear.

British climate scientists like Peter Cox at the University of Exeter have been among those warning that soils could be on the verge of becoming a dramatic positive feedback for global warming, with more warming resulting in more carbon released from soils, which will mean yet more warming.

Soils are also vital to biodiversity. A typical gram of soil contains an estimated 20 billion bacteria, only five per cent of which have been identified. But while we get almost daily reports on the state of the atmosphere and the climate system, we hear little about the state of the world's soils. This is because nobody is looking.

One obvious reason is that soils are hard to analyse. Soils are a chemical soup and also

hectare (there is no such thing, of course) loses around 200 kilos of soil to water erosion alone every year. But is this too much? Erosion is a natural process, after all. Soil is constantly being created from the bedrock (that's what a lot of the bacteria are up to) and eventually blown or washed away. Yet we have little idea where and by how much soil erosion exceeds soil creation.

In Britain, we can be sure some farming practices are bad news for maintaining soils. When EU subsidies encouraged the planting of winter wheat across the South Downs in the 1990s, the hills haemorrhaged soil because the fields were being left bare at the wettest time of year. That was bad for the soils, but also bad for surrounding

'Soils nurture and sustain, they germinate the new and reclaim the dead'

vary hugely physically, from light sandy soils to clay pod soils and peaty masses of carbon. On most farmland they are part natural, but hugely influenced by human chemical inputs and physical interventions, like drainage and ploughing. To complicate things further, soil science is arcane and incomprehensible to anyone who doesn't know the language.

The best guess is that Britain loses about 2.2 million tonnes of topsoil every year to erosion by wind and, mostly, water. A typical

communities. Drains were blocked and houses flooded with muddy water. So we noticed; but often we do not.

Soils can be threatened from the air too. Not just by wind, though that can be a powerful scourge on bare open fields, but also by acid rain. Soils in parts of upland Britain remain heavily acidified by past air pollution. Things are much improved today. But the contamination lingers and the acid smogs that once engulfed the Pennines from





the industrial towns of Yorkshire and Lancashire have left a legacy of soils too polluted to grow trees.

And there are heavy metals lingering too from past fallout from the air. According to the European Environment Agency, some soils in northern England have the highest rates of lead contamination in Europe.

Meanwhile, soils are being sealed off by being paved over for urban and industrial development, or infrastructure like roads. And when the soil is eventually unsealed, many 'brownfield sites' emerge heavily contaminated. This can occasionally be a boon for unusual plants and bugs, but more often is a second blight. Urban soils are a resource we may increasingly need.

Soils perform numerous ecological functions. Besides storing carbon, they store, filter and then release water, for instance. Good soils prevent floods, maintain and keep pure underground water reserves, keep rivers flowing during droughts and moderate pollution from the land. Bad soils create floods, drought and pollution.

But what about their most immediate productive role – making food? After years of being taken for granted, food security is suddenly a major political issue. The recent food price surge and shortages - caused by drought in Australia and rising demand for food in Asia and biofuels elsewhere - have combined to raise the spectre of famine for the first time since the seventies.

As the Department for Environment, Food and Rural Affairs' (Defra) chief scientist Bob Watson has pointed out, the world has to feed an extra two billion or more people by 2050, while simultaneously protecting

surviving natural eco systems from being ploughed up, enhancing soils as carbon sinks to slow climate change, and, in all probability, growing biofuels as well. It is a big ask.

Research to fulfil these competing goals should clearly be a high priority. Soils provide a test case for inter-disciplinary science in the common cause of promoting national productivity and environmental protection. On the face of it, the circumstances should be right for this kind of joined-up research in Britain. The government's civil servants in charge of the environment and agriculture are now under the same roof at Defra.

Last year, the Royal Agricultural Society of England published a report by the country's five top soil scientists lambasting the government for failing to support basic soil science. British agriculture 'is in real danger of abusing its most precious asset, the soil,' they said, in part because key research departments were closing and key scientists were leaving the country.

In fact, more researchers would have departed but for the fact that worldwide soil research has been in a similar downward spiral. As experts retire, the world is forgetting more than it is discovering about soils. If we once knew the answer, we may now have to find it again. Sadly Kenneth Williams is no longer with us to help out.



Fred Pearce is Environment Editor for *New Scientist* magazine

Soil savvy farmers of the National Trust

When most of us think about the National Trust we probably picture grand country houses and well-tended gardens. But the organisation is also a major force in farming, with 2,000 tenant farmers and more than 245,000 hectares of agricultural land.

The Environment Agency is working with the Trust to improve the quality of soil management across its farms, by offering specially-designed training for its farmers. Careful management of soil can bring a host of benefits both for farmers and the environment, from improved crop yields to reduced flood risks for the surrounding area. The Trust also has its own in-house advisory team, so they are being trained too.

The Environment Agency's Communications Programme Manager, Paul Meakin, himself a former farmer, has been working on the project. 'About 2.2 million tonnes of soil are lost every year through erosion – but that's just the tip of the iceberg,' he says. 'Compacted soil can also be a real problem. Soil can become compacted if it is trampled by livestock, or is worked in wet conditions or by heavy machinery. That means water cannot penetrate the soil, which means rainfall doesn't penetrate the ground and can cause localised flooding.' He adds: 'If slurries, manure or any nitrogen-based fertiliser are applied to the ground but not taken up because the soil is compacted, they can be lost – which means higher costs for the farmer.' Compacted soil where grass is growing for livestock produces 20 to 40 per cent less than it should do, so there's a profit implication too. Ensuring that the National Trust's farmers can identify potential soil problems and take appropriate action is good news not only for them but also for the environment itself.

'We want to make sure that our land is managed to the best possible level and this training will certainly help,' says Alison Rickett, Rural Skills and Training Advisor for the National Trust. 'Our tenants know how important soils are – but this will ensure they can look at even better management.'

Outstanding in his

Who: Ian Waller
What: Local farmer
Where: Greater Missenden, Buckinghamshire

Ian Waller has bags of passion and enthusiasm when it comes to sharing his extensive farming knowledge. His experience of what works and what doesn't is well known in his local community, where he spends over 40 days a year talking to other farmers and countryside organisations. And over the past two and a half years more than 6,000 curious souls have passed through the gates of Hampden Bottom Farm to join one of his farm walks and witness his environmental achievements first-hand.

So it came as no surprise to many when he scooped the 2008 Countryside Farmer of the Year Award - sponsored by the Environment Agency - for his work on his 1,200 acre farm of arable land near Great Missenden and the other 800 acres he manages on behalf of other local farmers.

He received the award from BBC sports presenter, Clare Balding at the annual Farmer's Weekly awards, which also recognised 14 other outstanding farmers.

He operates a six-year rotation of crops, grown for the Warburtons bakery, which includes milling wheat, oilseed rape and beans. But it was his commitment to, and real successes with environmentally-friendly farming techniques that most impressed the judging panel.

'I was ecstatic to win this prestigious category of the awards,' he explained. 'It's not



'It came as no surprise to many when he scooped the 2008 Countryside Farmer of the Year'

easy to link environmental work with traditional farming techniques but it's definitely worth the effort and when you do get it right, it's very gratifying to be recognised in this way.'

By making sure that 38 kilometres-worth of two metre margins are planted with seed mixtures on the farm he encourages insects and birds. He also cuts 35 kilometres of hedges on a three-year cycle

with a multi-blade saw for a cleaner cut, as this helps to stop the branches from splitting. All of this helps towards the 55 hectares of environmental stewardship on the farm.

He has also installed bird

field

boxes on the farm, to encourage barn owls and kestrels, and he has reserved a cultivated fallow-plot (that's an empty field to those of us who are not entirely familiar with farming terms) for lapwings and other ground-nesting birds. Other rare species, including crested newts, nationally-scarce butterflies like the marbled white and five species of mining bees have also been spotted on the farm.

He also makes sure that fuel, fertiliser and crop protection products on the farm are used sparingly and that no ploughing takes place, other than of the small area of organic land. Minimum tillage and direct drilling techniques are used to avoid excessive cultivation of the soil. His farm machines are also well-maintained and he makes sure that his tyre pressures are regularly adjusted.

His tractors are fitted with a GPS kit and he uses a Yara N-Sensor to make sure that the nitrogen fertiliser he uses is only distributed where it is needed.

He's also fitted a baffle plate on his pneumatic fertiliser spreader, which controls the spread of the fertiliser and prevents it from reaching field margins, hedges, watercourses and, most importantly, the local water environment.

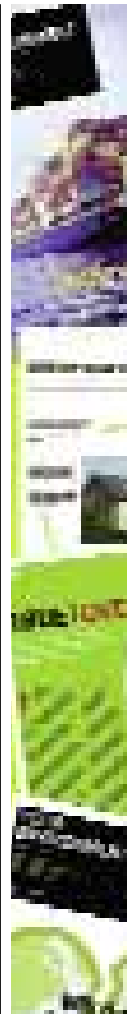
As a first-generation farmer, Ian started working first as a contractor, then a share farmer and, for the past eight years, he's been a tenant.

Despite all his commitments, he still finds time, to carry out conservation and voluntary work as a member of Linking Environment and Farming (LEAF), he's chairman of the local agricultural training group and vice chairman of the local Chiltern Hills Agricultural Association.

'LEAF has really helped me to see the bigger picture,' he says. 'I was amazed at just how many opportunities are out there for people to work towards, and benefit from, environmental improvements on their farms.'



L - R: Environment Agency Chief Executive, Paul Leinster, Ian Waller and Clare Balding



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Tracey Smith is a writer, broadcaster, downshifter and author of *The Book of Rubbish Ideas*.

THE REAL STORY

Udderly amazing: the journey of milk

In 2007, there were almost 18,000 dairy farms in the UK, with 1.9 million cows, producing 13.5 billion litres of milk. Dairy Crest handles approximately 2.4 billion litres of milk every year. So how does the wonderful white stuff get from the cow to your cuppa?

FACTS AND FIGURES

Dairy Crest buys milk from approximately 1,450 direct supplying dairy farmers, the majority are located in southern and central England and South Wales. It is 'farm assured' and produced to stringent standards governing food safety, animal welfare and protection of the environment. These standards are set out in Dairy Crest's Farm Assurance Scheme, which embraces the National Dairy Farm Assurance Scheme.



Milk deliveries

Dairy Crest doorstep-delivers the finished product to 1.4 million customers in England and Wales. The average household takes 7.3 pints of milk every week.

On the doorstep

The milk is decanted into glass bottles. After 20 doorstep deliveries, the bottles are crushed and the remains used for road aggregate or in sandblasting; no glass milk bottle residue is disposed of in landfill.

Statistic:

Approximately half of the milk produced in the UK is used for liquid consumption. The rest is turned into other products like powdered milk, cheese and yoghurt.



A visit to the parlour

It all starts in the milking parlour; each cow pays a visit two or three times a day and yields an average of 7,000 litres a year during her working lifetime.

Chill out time

The milk is chilled to five degrees centigrade in a storage tank on the farm, which sometimes uses recycled cold water to chill the outside of the tanks.

Skimmed, semi-skimmed or full fat?

Within 48 hours, it's collected from the farm by tanker and transported to the processing plant. The fat is removed from the liquid and reintroduced to create semi-skimmed or whole milk.



Kill those nasties

The milk is heated and pasteurised, killing potentially harmful microorganisms such as pathogenic bacteria, yeasts and moulds, which may be present in the milk after the initial collection.

For more information:

www.DairyCrest.co.uk
www.MilkAndMore.co.uk
www.DairyCo.org.uk

AMAZING IDEAS

THE REVOLUTION: A WIND-UP ECO MEDIA PLAYER

Every now and again a clever little eco-gadget bursts onto the scene and seems to set the world on fire. In no time at all, the design has been ripped off and you can buy a cheap version in a marketplace near you.

Trevor Baylis, a British inventor, knows this only too well after the introduction of his wind-up radios. And now he has come up with a piece of technology that is impressively robust, multi-functional and sustainably powered by rechargeable Lithium Ion batteries.

The Revolution is a second-generation, reassuringly weighty, yet natty eco-media player. It's 'eco' because it's powered by a crank handle on the back of the unit and it deals with just about every type of 'media' you could want from one box.

It's not a power-hungry beast that'll leave you feeling like you've had a work out either.

One-minute of wind-time gives you 45 minutes of music play; you can also charge it via the USB on your computer. Fully powered, you'll get around 48 hours of play, enough to hear a wide selection from the 2,000 songs you can store on its 4GB memory.

You can listen to FM radio, watch movies (a full charge gives around six hours of playback), flick through your favourite photographs (only on a two inch screen, mind you). You can also read data files and e-books and it will function as a voice recorder too, with fairly impressive sound quality results.

The LED torch and the fact that you can give a boosting charge to your mobile phone are perhaps two of its less impressive features, but this bundle of shiny joy makes an ideal companion for a trekker, explorer or

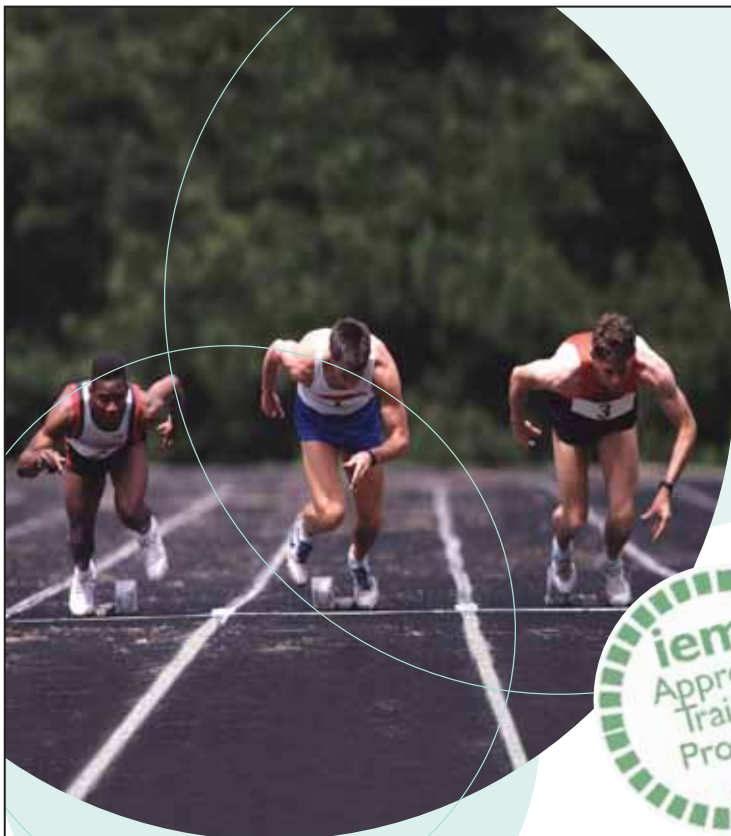


even a humble camper who has little access to electricity.

Loading it up with a variety of media is made easy via drag and drop transfer and it supports Microsoft Windows folders and file storage.

The Revolution retails for approximately £110 and is available from many green electrical retailers.

Visit www.EcoMediaPlayer.com to find out more.



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IF THERE'S ONE...

ALSO TRY...



... BOOK TO GET

The Polytunnel Handbook
Andy McKee & Mark Gatter
£10.95

Green Books

The last decade has seen an unprecedented rise in the demand for organic fruits and vegetables and each year more of us are discovering that homegrown food is fresh, tasty and nutritious. It's also considerably cheaper. But with a volatile climate and more extreme weather conditions to contend with, how can one ensure a healthy and abundant supply of food 365 days of the year?

Enter stage left, the polytunnel. If you have the room to accommodate one, it can be used as an affordable, low-carbon aid to growing your own food all year round, from crispy salads and vegetables in the dead of winter to mouth-watering melons and grapes in the summer.

This book walks you through every stage of polytunnel use from planning, siting, erecting, using and maintaining it, to harvesting the organic rewards. It's a jargon-free guide to helping you live more sustainably by seriously growing your own.

Precycle

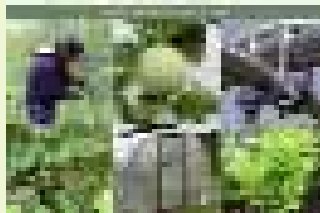
Paul Peacock
£7.95, The Good Life Press

An entertaining and informative paperback that shows you how to make cheap food, cleaning and hygiene products. It also helps you to ditch the pre-packed versions, eliminating the need to recycle copious containers.

Wild Swimming

Daniel Start
£14.95, Punk Publishing Ltd

Our freshwater rivers, lakes and waterfalls are cleaner, safer and more accessible than ever. Plan a great British break this year and fill it with picnics and splash-about.



... WEBSITE TO VISIT

www.environment-agency.gov.uk

The Environment Agency's website has received an extensive makeover.

Over 50,000 pages of content have been re-written, simplified and streamlined to around 13,000. Immediate benefits to the one million weekly users include greater speed whilst browsing and clutter-free layouts that are much easier to navigate. The upgrades have increased system reliability and performance at times of high usage, which is especially helpful to the public during times of flood alert.

Business users are also enjoying a more efficient route to information about directives, monitoring, compliance, environmental regulations and enforcement.

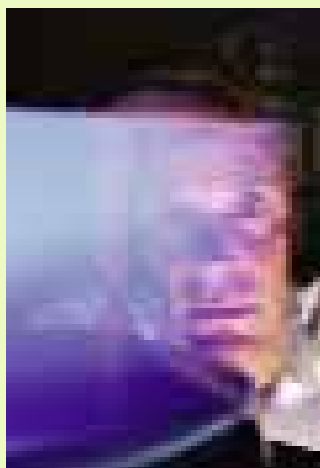
Visitors usually visit the website to look for information or advice on topics including permits, pollution and hazardous materials, through to purchasing rod and boat licences. It's hoped the new layout will encourage people to explore it more and have a read of some of the great paper-free publications here, like *Your Environment* magazine.

www.WiseWomen.me.uk

An inspirational collective of respected and well-known female voices, including our own Penney Poyzer. All of the women share an enormous passion for the environment; includes an impressive speakers' list and many UK events encompassing wide-ranging eco-topics.

www.OOFFOO.com

Offers a new and exciting take on recycling. You can sell, swap, give away and recycle items for free and get involved with an online community bulging with articles and news on how to live a more sustainable life.



... PROGRAMME TO WATCH

Ecopolis
Discovery Channel

Sundays from 22 February, 8.00pm

In the not too distant future, 75 per cent of the global population will be living in cities. These sprawling, ever-growing metropolises will see us burn through resources such as food, water and energy at a rate far outpacing those who live in non-urban areas.

Our continued mass consumption would result in a huge carbon footprint and create large amounts of waste, which would speed global warming and pollute our cities.

In Discovery Science's remarkable six-part series, Nobel Prize-winning scientist Dr Daniel Kammen reveals how science has the ability to change this detrimental effect on our cities, introducing 'Ecopolis', a possible blueprint for urban life in the year 2050. Ecopolis can benefit from green technologies, which could lead to a more sustainable life for all of us.

In each episode, Dr. Kammen evaluates innovative, technology-driven solutions for our environment selecting one that he feels will be most effective in saving our cities.

Grow Your Own Drugs

BBC 2 – TBC

Ethno-botanist and gardener James Wong fronts a new series that combines gardening with cooking, health and beauty. He demonstrates how plants can help with everyday ailments and even rustles up a few beauty treatments.

Ways to Save the Planet

Discovery Channel
Sundays from 15 February

A team of scientists embarks on a range of groundbreaking geo-engineering experiments to try and reverse the effects of global warming.



Environment
Agency

thinksoils

Soil erosion and run off causes flooding, pollution and damage to river habitats. Climate change is making this worse.

You can protect your soils by:

- understanding your soil type and risks
- assessing the condition of your soil
- removing compaction to reduce soil erosion and run off
- carefully considering the timing of field operations and stock management
- avoiding spreading slurry and manure when the soil is wet and there is a risk of run off and pollution

We are the Environment Agency. It's our job to look after your environment and make it a **better place** – for you, and for future generations. This includes being responsible for protecting and managing our soils.

We recommend a soil management training course as the best way for farmers, land owners and advisors to find out more about thinksoils. You can get more information about courses near you by calling our National Customer Contact Centre on 08708 506506.

Our thinksoils manual complements *Best Farming Practices* by providing more detail about assessing your soil. For more information on soils go to www.environment-agency.gov.uk/soils



ONE LAST THING...

'BUY LAND, THEY'RE NOT MAKING IT ANY MORE'

Penney Poyzer tried to heed Mark Twain's wise words. Then she came up against a Legoland's worth of stumbling blocks.

About 10 years ago, I had a dream of buying a small woodland in Nottinghamshire. I love bluebell woods and had an almost primeval urge to buy and preserve a little patch of heaven. I stopped bothering to hanker for one about three years ago because you can't buy them for love nor money now.

Land fertile enough for growing, versus development land has become à la mode in investment circles. Common land is very uncommon.

As our population expands we encroach ever more on green space. As the economy worsens, people in their thousands want to grow food in their own back yards, on allotments and community gardens.

These growing spaces are getting as rare as hen's teeth, which is a very good thing for the people who have got them and rather bad for people who can only yearn for a small patch to cultivate.

I think it is great that Rosie Boycott and Mayor Boris have come up with the splendid idea of creating 2012 community growing spaces in London by 2012. Maybe there is a cunning plan to feed the Olympic athletes on locally grown food, with local vendors selling 'carrots, get your locally grown carrots!'

The value of land for growing is appreciating. It has been calculated that people will pay on average £9,000 more for a house with a garden. This figure may increase as a percentage of the value of the house if food prices

continue to rise. It sounds a little bit 'survivalist' but is it not just common sense?

During the war, even the royal parks were turned over to allotments to help feed a hungry nation.

I'm not suggesting that these wonderful amenities are lost under mountains of compost, but 10 per cent of parkland given over to community gardens doesn't sound that unreasonable to me.

I think community market gardens selling fresh produce would attract loads of visitors and could even stimulate biodiversity and the local economy. It would mean low carbon fruit and veg in walking distance of most urban dwellers. I like the sound of it.

I recently had a chat with the deputy leader of one of our local authorities about the idea of local people cultivating areas of public parks for organic growing - and

planting fruit and nut orchards for future generations. He really liked the idea and he felt that other authorities might feel the same.

The Co-operative Group owns 75,000 acres of agricultural land. This land is owned by four million members. A membership, hands-on approach to growing has been lost in the mists of time but that may change with the Co-op Group's proposal to build an eco-town on its own land just outside Leicester. This will no doubt draw some flak about buildings - no matter how green - taking up valuable growing space. But perhaps radical solutions are needed. This quote is taken from its website: 'We are a leading farmer and will use the eco-town to pioneer new methods of local food supply and agricultural energy production which will be needed to meet the challenges of climate change'.

Locally grown organic food is carbon light food. An organic carrot 'grown in' from Israel is a very hefty vegetable with very little nutritional return for its massive carbon footprint.

I firmly believe that we are on the brink of a locally-grown, personally-grown food revolution. Local authorities such as the Greater London Authority, local councils like my own here in Nottingham and the Co-op Group are ready to make changes that hopefully will be nothing less than a revolution in the way we use and own land. Common land for the common people.



My dream bluebell wood

istockphoto.com

Rainwater - the precious natural resource

Water is becoming an increasingly precious natural resource. Whilst we appear to have an abundant water supply 97% of the 1.4 billion cubic kilometres of water on Earth is sea-water. 2.7% of the remaining 3% is permanently bound up in ice at the poles. Leaving only 0.3% of the Earth's water resources is usable fresh water.

Surface water, (a large body of water to be disposed of quickly) is currently causing flooding to unprecedented levels not previously seen. Therefore to collect and use significant amounts would make storm water a social rather than a weather driven event.

The "Rainman" systems collect rainwater from the roof via gutters and down pipes, passing through a gravity type filter into an underground tank where the oxygen rich water goes through a natural secondary biological purification. A submersible pump in the tank delivers rainwater typically to toilets, washing machine and outside tap. An automatic change over to mains water in times of low rainwater prevents any discomfort to the user.

Water quality from rainwater systems has to fulfil European regulations for bathing water (76/160 EWG). Scientific studies have determined that the quality of collected rainwater from the roof poses nil risk to public health.

Freewater UK select the latest and best technology and make systems UK specific. Our philosophy is to supply a complete system package, pre assembled where possible made easy to install.

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Brian Hirst, Managing Director

Elite MicroRain Processor

Freewater UK have developed their own intelligent software programmable microprocessor, "MicroRain", which supports features unique to Freewater UK. MicroRain has a 32 character LCD display. Default display shows tank level/system pressure, integrated programme to auto test run system components and display system error messages in clear word format, see features below. Freewater UK in-house components are pre mounted, wired and plumbed onto a back plate assembly. Installation requires, on/off electrical spur switch for mains cable, 15mm Mains water connection to mains water solenoid valve, pump female socket ready fitted at back plate, pump has electrical male socket fitted, simply plug in.



Commercial Back Plate

Unique features, R I M "Remote integrated Measurement"

(wireless Technology)

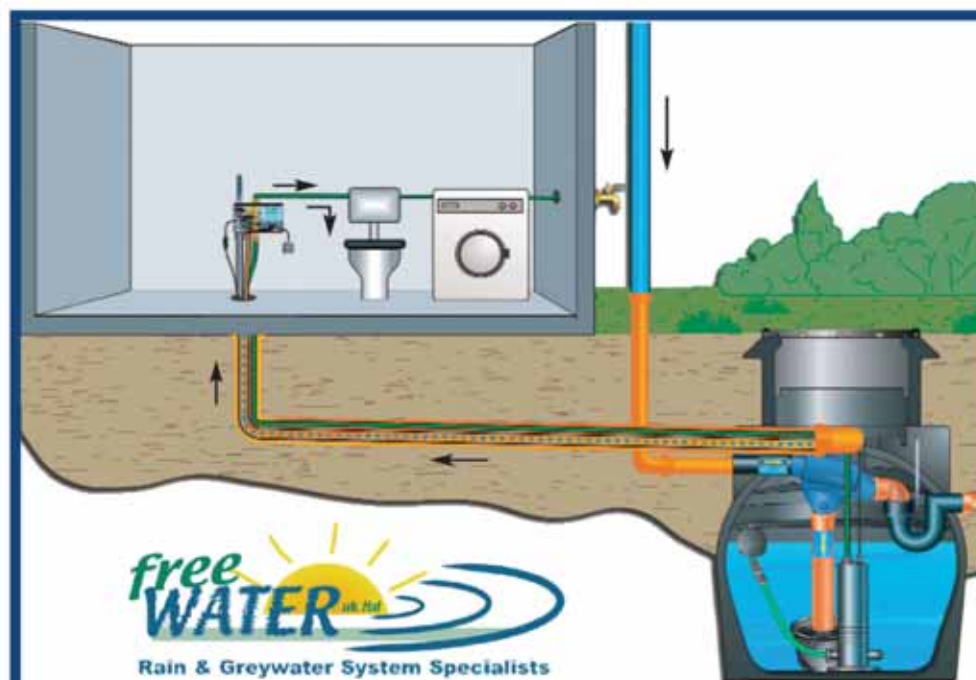
Through conversion of weight of water hanging in delivery pipe, from one way check valve at in-house back plate through delivery pipe to in-tank pump floating extraction hose. I R M enables tank level display in %, recognises and maintains minimum tank level using mains water in times of no available rainwater.



Elite MicroRain Processor

"MicroRain" Microprocessor Features:

- 32 character LCD display, two line clear word format
- Default display, tank level system pressure
- Pressure/flow sensors, switch pump on and off (no moving parts)
- R I M tank level display in %
- R I M auto maintenance of minimum tank level with mains water
- Auto test run system components every 30 days
- Ability to manually test run system components
- Timed automated filter wash, 14 day cycle
- Pump run dry protection, shuts system down to protect pump
- Leak at toilet ball cocks, taps etc, error message
- In-house pipe break, shut down system
- Optional B M S alarm signal facility (Main board)



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