Landwards

Agriculture • Horticulture • Forestry • Environment • Amenity

Controlled Traffic Farming

Askham Bryan event focusses on reducing input costs

Towards 2050

Professor Dick Godwin on the urgent need for agri-research as demand for food grows

Timber Engineering

Dr Geoff Freedman on why wood is making a comeback as a primary structural material

IAgrE Professional Journal www.iagre.org Volume 63, Number 4 Winter 2008

Conference 2009

Landwards
Agriculture • Horticulture • Forestry • Environment • Amenity

Land Use – The Choices and Challenges Ahead

A CONFERENCE FOR ALL SCIENTISTS, ENGINEERS AND MANAGERS INVOLVED IN USING THE LAND ACROSS THE UK

The need to achieve more secure food supplies and to obtain more of the nation's energy and raw material requirements from the land whilst maintaining biodiversity along with providing access for amenity presents a mounting challenge for both policy makers and land managers. Conflicts are inevitable. What factors should come into play when determining whether land should be used for food or fuel; production or wild life and amenity; how can surface water management be incorporated, where does forestry fit in? Can the conflicts be mitigated; where is the balance; where are the gaps in our knowledge; how can engineers and scientists contribute by working with land managers?

These are the issues that will be addressed by the 2009 Landwards Conference.

The keynote paper will be given by Professor Allan Buckwell who will set the scene and consider the policy options relating to land use. Professor Buckwell is currently Policy Director with the (England and Wales) Country and Land Business Association and is chair of the policy committee run by the European Landowners Association.

Professor Chris Pollock with an extensive background in research particularly as Director of the BBSRC Institute for Grassland and Environmental Research and as author of a recent report relating to sustainable land use will point up some of the key areas requiring further research.

A representative from the National Trust, the nation's largest land owner with particular responsibilities to uphold heritage amenity and wild life interests whilst operating against economic criteria will set out how the Trust balances such conflicting demands.

Dr Barry Gardiner, Deputy Head of the Forest Management Division of Forest Research at The Forestry Commission, will also outline how the needs for economic management can be matched to environmental and amenity considerations.

The morning session will be chaired by Roger Lane-Nott, CEO of the Agricultural Engineers Association and will be pulled together in a discussion session.

In the afternoon, Poul Christensen will combine his experience as a farmer, Vice Chair of Natural England and non-Executive Director of Defra to chair a session concerned with individual production sectors. This will include papers dealing with main stream agriculture and large horticulture both in the field and under glass.

Dr Malcolm Crabtree, manager of the Leckford Estates with many diverse enterprises and forms of land use that are closely connected to the requirements of a high profile food retailer, will give these issues a real life context.

Peter Redman, a past President of IAgrE and Technical Secretary to the Douglas Bomford Trust, will present the final paper at the conference. Using his considerable experience from working with ADAS and a wide range of organisations, he will consider the implications of the issues raised during the day and will identify opportunities for inputs from engineers, technologists and managers.

LANDWARDS™2009 Conference

May 7th

Venue:

Royal Agricultural College
Cirencester

For further information, please contact:
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The professional body for engineers, scientists, technologists and managers in agricultural and allied industries including food, forestry and biological systems

IAgrE is a licensed body of the Engineering Council[UK] and a founding constituent body of the Society for the Environment

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AGRICULTURE **FORESTRY** **ENVIRONMENT** **AMENITY** **HORTICULTURE**

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Innovation, science and technology in **Ag**riculture and the **R**ural **E**nvironment

The Professional Journal for Engineers, Scientists and Technologists in Agriculture, Horticulture, Forestry, Environment and Amenity

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THIS ISSUE

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EDITORIAL

Winning hearts and minds

SLOWLY, inexorably, the face of agriculture is poking its face above the parapet and starting to shout at those who have the power to listen and act.

Until now, the closest most non-farming folks got to the industry was Farming Today for the insomniacs and early risers - and The Archers.

However, in recent months the admirable Jimmy Doherty has presented a terrific series of programmes, Farming Heroes - and followed that with a thought-provoking analysis of the GM issue on BBC Two Horizon.

NFU President Peter Kendall has been all over the radio like a rash - and a number of industry worthies such as Dick Godwin have produced well-researched papers on the future of food production which has been extensively picked up and reported by the national media.

Of course, one step forward - and one step back is always a likelihood, and such was the case with the Georgina Downs pesticide ruling, the ramifications of which have not yet been fully assessed.

Here again, perception is the key.

Recently the HSE published the results of a mammoth study into the 'the prevalence of pesticide-related illness in Britain'. This involved a sample of 59,000 patients gathered from GPs. Of these, 2,600 were identified as being exposed to pesticides (in a variety of circumstances) - and of these 20 (0.04 per cent) were actually suffering from a pesticide-related condition (and even fewer were connected to agricultural chemicals).

Not surprisingly, this research failed to grab the headlines!

Yet survey after survey indicate that a majority of the British public want pesticides banned.

Much has been done, and is being done to control and limit any risk - and indeed there is a large body of opinion which champions an outright ban.

We however have a situation at present where a new pesticide directive is being hammered out in Brussels, which could lead to a considerable reduction in the range of products.

Then what may happen? Why fruit and other crops would be grown outside the EU using the very same chemicals - and then imported.

It is these very real challenges of timely and balanced food production that will exercise the minds of scientists, agronomists and experts in mechanisation over the coming years - which is why maintaining a comprehensive research base is so vital for our industry - and the country.

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CEO VIEW

". . . HUGELY complex, voluminous, badly drafted, overly bureaucratic and difficult to understand . . . Parliament has created a recipe for confusion."

Words used in a recent letter to a national newspaper describing the new mental health act. It could also be a description of just about any UK Government policy enacted over the last decade or so!

It certainly describes the situation pertaining to skills. An excellent 'Policy Watch' document recently issued by Edexcel entitled *'Who does What in the skills system'* lists 4 planning and funding bodies, 4 regulatory/inspection agencies, 5 Government departments, 9 bodies supporting or representing providers, 10 support agencies, 12 strategic bodies and 16 separate support mechanisms.

The document makes the point that "change should be based on empirical evidence not political imperative".

Furthermore, "it's not just the number of bodies and agencies that make the system appear complicated, it's the range of mechanisms that are constantly being developed to support them. Sector Compacts, City Strategies, Innovation Vouchers, Skills Accounts, Area Agreements, Pathways to Work - each no doubt important but collectively adding to the sense of complexity".

And the final point, "old bodies never die they simply mutate into something else. The result is the system tends to build on itself until it either collapses or re - invents itself thus precluding the need for change in the first place".

Just how on earth employers, and in particular the SMEs, are able to find the time to understand this mess when it is clear that those who create the complexity in the first place don't understand it themselves is beyond me. But then I am clearly stupid. I am also ashamed to be a taxpayer!

Change is easy - it is progress that is difficult.

Christopher Whetnall

Mark Moore presented with Michael Dwyer Memorial Prize

Honor bestowed at the new AGCO training Centre

DR Mark Moore, winner of the Michael Dwyer Award, was unable to be at the annual conference in May to collect his prize and due to various work commitments has only recently managed to attend a branch meeting to receive it.

His prize was presented to him by John Fox at a West Midlands Branch meeting entitled '*Fifty Years of Massey Ferguson*', held at the new AGCO training Centre. Mark is an AGCO man so it was all very appropriate.

Mark is an internationally recognised expert in the subject area of precision farming and the application of technology to agriculture and is often asked to speak on this subject at conferences and technical meetings throughout the world. His current position as Product Manager – Global for AGCO Ltd. involves developing medium to long term strategies for developing technological products across all brands and regions – brands that include such well known names as Fendt, Massey Ferguson, Valtra and Challenger.

He travels widely and works to produce business cases for his company to invest in high technology products, seeks to define and explain the benefits that can come from such products and is involved with communicating these benefits to senior management and marketing teams.

L-R: John Fox presents the Michael Dwyer Memorial prize to Mark Moore at Agco's new training centre

Mark's association with the AGCO 'Fieldstar' system and subsequent precision farming platforms has been pivotal to the contribution he has made in this technical area. Massey Ferguson / AGCO became involved with many projects seeking to develop and exploit precision farming technologies with partners from both commercial and research and development organisations, and Mark was instrumental in establishing the Precision Farming Alliance that has aimed at providing a forum for practical farmers, researchers and technologists to share ideas and experiences relating to precision farming systems.

One of Mark's major strengths is the ability to continue the practical aspects of his work, developed from first hand experience of working on farms, with both the technical and managerial aspects. His completed PhD made an important contribution to precision farming – yield mapping and beyond – and his career within AGCO has developed rapidly and involved him spending a lot of time outside of the UK.

HRH Prince Charles becomes an Honorary Fellow of the Society for the Environment

THE Society for the Environment (SocEnv) has announced that His Royal Highness The Prince of Wales has accepted an Honorary Fellowship of the Society for the Environment.

The Society recognises The Prince of Wales as an outstanding ambassador for environmental matters across the many disciplines represented by SocEnv's membership, from ecology and resource management to engineering and the built environment.

Through initiatives such as Accounting for Sustainability and The Prince's Foundation for the Built Environment and The Prince's Rainforests Project, The Prince of Wales has demonstrated a tireless commitment to issues of sustainability, and has promoted innovative, practical solutions to some of our most pressing global challenges.

Tim Boldero, Chair of the Society for the Environment said, "To welcome His Royal Highness into the Fellowship of the Society is an honour in itself. To welcome a natural environmentalist who has always stimulated public debate makes the occasion even more special and a significant moment in the history of this evolving Society."

Jaguar to host Young Engineers

Competiton to take place at Castle Bromwich Plant 14 May '09

THE IAgrE Young Engineeers Competition 2009 will take place on Thursday 14 May at Jaguar Cars' Castle Bromwich Plant, Birmingham.

Autoguide Equipment will once again sponsor the Competition with support from Bosch-Rexroth.

Part of the Institution's '*Raising the Profile of the Industry Campaign*' the competition is designed to raise the awareness among young engineers as to the width and vibrancy of the Industry. The competition itself takes the form of being given a set of standard wheels, a battery and maximum dimensions, with the brief to create a remote or radio controlled vehicle to produce the best performance on a standard test track.

Christopher Whetnall, Chief Executive of IAgrE said, "The competition is not restricted to engineering departments; indeed all disciplines within the land based colleges will be welcomed. We also welcome entries from Sixth Form Colleges."

"Jaguar Cars Ltd has kindly agreed to host this event and a factory tour of the Castle Bromwich plant will form part of the day.A total of £1300 is available as a prize fund. There will be two classes, one for those meeting the design criteria issued and one for those outside those criteria."

Winners of the this year's Young Engineers competition from Myserscough College

A buffet lunch will also be provided.

For details of the competition and how to enter visit *www.iagre.org/yecomp.shtml*.

Next step for Landskills investment

A LAND skills expert has been appointed to help agricultural and land management businesses in North East England access a £1.2 million programme to help develop their skills through training.

Peter Nailon

Peter Nailon has been appointed to manage LandSkills North East, part of the Rural Development Programme for England (RDPE), which is managed by Lantra, the Sector Skills Council for the environmental and land-based industries, on behalf of One NorthEast. The programme will provide a whole range of training opportunities to help land-based businesses become more profitable and competitive.

The programme will be run by a Steering Group which is made up of industry representatives and stakeholders.

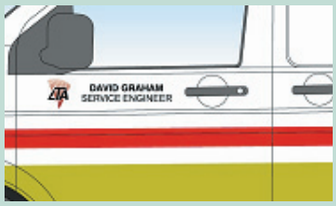
LTA scheme reaches first anniversary

BY the time you read this the first anniversary of the Gaydon launch of the LTA scheme will have passed.

There is much to celebrate. Registration numbers (LTA 1 and 2) are fast approaching 2,500 and we anticipate applications for LTA 3 any day now. This is exceptionally good progress and is a clear indication that the LTA scheme is the right scheme at the right time.

Agreement has been reached with participating manufacturers about how and where the LTA logo can be displayed on service vans and LTA decals are on their way to the Manufacturers for distribution to their Dealers. So expect to see service vans from participating Dealers with the technicians name together with the LTA logo on the doors.

The picture shows what we expect a Claas Dealer's service van will look like. Other Manufacturers are already using IAgrE and EngTech abbreviations alongside the technicians name. Some Manufacturers may also choose to place an LTA decal on the LH rear door.



We are ready to process applications from those specialists such as grain drying installation technicians, welders and others who may be working within a franchised dealer. Identity cards in these cases will display the Dealer name rather than the main franchisor. Similarly, Dealer Service Managers and Manufacturers training personnel are recognised under the scheme.

The LTA team will be taking a well earned Christmas break so bear with us if things seem to be quiet over the holiday period.

IAgrE award for Brooksby student

AG TECH student, James Owen of John Deere dealer Chris Tallis Farm Machinery Ltd, was recently presented with the IAgrE Prize.

Given as an 'award of commendation' to a third year apprentice at Brooksby Melton College during their presentation day for Landbased Service Engineers (agricultural and groundcare), his trophy and tankard was handed over by Richard Robinson.

L-R: James Owen and Richard Robinson

James, who is from Cheltenham, currently works as part of the nine-strong service team at Chris Tallis' Bibury branch near Cirencester, Glos, having started as an apprentice at the dealership's Hinton-on-the-Green, Evesham depot in spring 2005. Director Ben Tallis put him straight onto the John Deere Ag Tech training programme at Brooksby, and James will complete his fourth Diploma year in 2009.

"James joined us straight from school by simply walking in one day and asking for a job," says Ben Tallis. "After we opened the new Bibury depot in November 2007 I moved him across to join the service team there, and he's fitted in really well. When he completes his Diploma we're planning to fix him up with a work placement at a John Deere dealer in Australia for six months, so he can get in a bit of travelling to go with his new qualifications, then he'll be back with us as a fully functioning member of the service department."

Lord Rooker RABDF president elect

THE Royal Association of British Dairy Farmers' (RABDF) president elect is Lord Rooker, Defra's immediate past Minister of State for Sustainable Food and Farming and Animal Health.

He will succeed Baroness Hazel Byford at the Association's agm in June 2009.

"We are delighted that Jeff Rooker has agreed to accept our offer and to support RABDF," says the association's chief executive, Nick Everington. "His enthusiasm for grass roots farming combined with his keen interest in current issues impacting on dairy producers' livelihoods will help drive forward the organisation strategically and benefit all farming businesses."

•A ONE day workshop to help companies and individuals weather the economic storm is being held in central London on 21st January 2009.

The Institute of Materials, Minerals and Mining (IOM3) is organising an event which will include advice on how to improve communication skills, deal with the media, apply for funding, network effectively, and give presentations in order to achieve results that will boost staff skills and confidence and ultimately win more business.

Dr Brett Suddell of ADAS, the conference chairman, said, "In these difficult economic times investing in people is more important than ever to gain a competitive edge and have an advantage in the market place. Young scientists and engineers need to develop new skills to add to their technical expertise in order to increase their business potential."

The workshop will also appeal to student scientists and engineers who want an advantage when applying for jobs.
www.iom3.org/events/boost

Massey Ferguson scoops top awards at EIMA show

MF 8690 wins Tractor of the Year 2009

MASSEY Ferguson picked up a string of prestigious awards on the opening day of the EIMA Show in Bologna, with the MF 8690 taking the two top accolades of 'Tractor of the Year 2009' and the 'Golden Tractor Design Award'.

The MF 3655F tractor also received a finalist award for the best Specialist tractor.

"Everybody at Massey Ferguson is tremendously proud and honoured to receive these important awards," said Richard Markwell, Vice President and Managing Director of Massey Ferguson, Europe, Africa and the Middle East.

The company say that at 370hp, the MF 8690 is not only the world's most powerful conventional four-wheel drive tractor it is also the first ever to be equipped with the industry-leading e³ Selective Catalytic Reduction exhaust treatment, making it the cleanest emission tractor in its class as well as delivering fuel economy. This new technology is also available on all five models in the complete MF 8600 range, which made its debut at EIMA.

The MF 8690 was named as the 'clear winner' of the Tractor of the Year by a jury of journalists from 20 leading farming magazines from across the whole of Europe. Manufacturers cannot enter - the tractors have to be nominated by the jury and the competition prides itself on its independence and unbiased assessments.

The jury votes for each of the finalists, awarding between one to seven points for each of the following features: Engine, transmission, standard electronics, hydraulics, cab comfort, innovative technical features, design and options. The jury considers price/hp ratio so important that this receives double points.

SDF to open production plant in Russia

SAME Deutz-Fahr is to open its own production plant in Russia - a move which has called for a 20 million Euros investment to be made over five years.

The assembly plant will be located in Moskovskaya Oblast, Leninsky Raion, d.Asherino and is expected to be in production during the first half of 2009. The project, which is focused on the assembly of medium to high horsepower tractors - 165hp to 270hp - will be developed in two phases.

The first will see the completion of tractors imported from Germany using localised, selected components - wheel rims, tyres, hydraulics etc, and the second phase will be the assembly of tractors from imported components manufactured in Germany along with parts sourced locally.

"We have always considered the Russian market to be the one with the highest potential and be very attractive for investment," said Massimo Bordi, SDF's chief executive officer. "By following the phases outlined above we will reach and quickly exceed a localised component value of 20%. The aim is to increase production capacity in Russia along with the local added value in order to optimise production costs."

In 2008 SDF, which is present in Russia with a commercial subsidiary, expects to increase the volume of tractors sold in the CIS countries to 300 units. By 2013, the company anticipates sales to reach 1500 tractors per year.

The main factors leading to such an ambitious result include a strategic decision to commercialise the Deutz-Fahr brand in the CIS region. The strengthening of the sales network by appointing one exclusive distributor for Russia, EuroAgroPostavka and dedicated, exclusive importers for Ukraine and Kazakhstan are additional steps.

Claas expand apprenticeship schemes

New course based at Barony College near Dumfries

CLAAS UK say they are helping to lead the way in the development and introduction of a new training qualification for apprentices, that will raise industry standards further and help move the whole spectrum of training forward in order to assist in meeting future needs.

The students joining the Claas apprenticeship scheme this autumn will be the first in the UK to study for a manufacturer sponsored National Diploma in Land Based Technology.

At the same time, the company has also expanded its own apprenticeship programme with the introduction of a new course based at Barony College near Dumfries, making it the first major manufacturer to offer such a scheme in Scotland.

In all, a total of 25 students will be joining the Apprenticeship scheme this autumn, with 12 based at Writtle in Essex and 13 at Barony College.

"Claas is one of the first manufacturers to adopt this new higher qualification and we have a direct input into the development of this bespoke programme. We are working with other manufacturers, some of whom are also considering offering the Diploma in the future," explains training manager, John Palmer.

Barony College now offers the Claas apprenticeship scheme

"The main benefit of the new Diploma is that upon qualification, the successful candidate will receive a Pass, Merit or Distinction grade, which will enable them to better demonstrate and gain recognition for their progression and ability. In addition this should also enable them to progress quicker through the Land-based Technician Accreditation (LTA) scheme."

Unlike the previous modern apprenticeship course that was four years long, the new Diploma course takes only three years, but those on the Claas course will do an additional year during which time they will gain additional certificates, such as those for towing a trailer, refrigerant handling or forklift operators' licence. In addition, as before the students will also have the opportunity to train at Claas UK headquarters at Saxham, and subsequently at the Group headquarters at Harsewinkle in Germany, before being able to work for a CLAAS dealer in Australia or New Zealand in their final year.

•SIXTY Honda (UK) apprentices graduated after three years hard graft and commitment at a ceremony at the Honda Institute in November.

The apprentices graduated from all four business areas Power Equipment, Parts, Cars and Motorcycles, and will now go on to further their roles within their individual dealerships and business areas.

In addition five apprentices who are currently still on the apprentice programme were named Apprentice of the Year within their business areas after being nominated by the dealership and the trainers who mentored them:

Amongst them was Robert Lewis of J Deamer & Sons Ltd who won the Lawn & Garden Apprentice of the Year.

Vicon update spreading websites

VICON have updated their fertiliser spreading charts websites.

The company says that as physical and chemical compositions of fertilisers are changing continuously, this has an effect on granular characteristics which then needs an adaptation in adjustment of the spreader.

New fertilisers have been added and old ones deleted, to provide the most updated information available - essential to determine spreading accuracy and to ensure that high value fertilisers are to be used to full effect. The layout of the website has been redesigned and simplified, resulting in access to the spreading charts being much quicker and easier.

From the office computer, the spreading charts can be found at: *www.viconspreadingcharts.com.*

From mobile phones, Blackberry, iPhone or other PDA, the spreading charts can be accessed via *http://vicontab.mobi*.

Businesses needed to make Diploma a success

NOW is the time for businesses to sign-up and help shape the country's future workforce say LANTRA.

England's next generation of employees and professionals will have the opportunity to choose the new Diploma in Environmental and Land-based Studies, which enables students to learn about industry from employers.

Aimed at 14-19 year olds, the Diploma in Environmental and Land-based Studies is an industry-led Diploma that becomes available in schools and colleges from 2009. The content gives learners an opportunity to develop the skills and knowledge required to progress into further learning or employment within the sector. The Diploma can be studied alongside GCSEs and A Levels and is available at three levels.

Chair of Lantra's Diploma Development Partnership, Bob Fiddaman said, "The Diploma has huge advantages for industry, so it is vital that employers are involved in its delivery."

Visit *www.diplomaelbs.co.uk* or contact Lantra Connect on tel: 0845 707 8007.

Call for SaWMA journals

FOLLOWING the launch, by Prof Dick Godwin, of the RASE report on 'The Current Status of Soil and Water Management in England' (see p.15), IAgrE has agreed to make past copies of relevant articles from the SaWMA journal - Soil and Water available on line on the IAgrE website.

The IAgrE secretariat is currently gathering copies of the journal in order to have them digitally scanned. So far we have managed to locate Volumes 9 through 15 (1981 - 88). If any member has access to other issues/volumes and is willing to make them available to IAgrE on a temporary basis, would they please be good enough to contact the IAgrE Secretariat with details.

Biodiversity challenge should focus on solutions

Farmers are playing a key role and will continue to do so, say NFU

THE challenge in tackling biodiversity changes is developing and implementing solutions and farmers are already playing a key role and will continue to do so, the NFU said recently.

Responding to the Environmental Audit Committee's report titled '*Halting biodiversity loss*', NFU Vice President Paul Temple said farmers were already doing a lot to meet the twin challenges of increasing food production while looking after the countryside and reducing our environmental footprint.

Mr Temple said, "It is not surprising that over the last 50 years the distribution and scale of biodiversity has changed. During this time the UK's population has grown from 47 million to 62 million, the number of cars has increased ten-fold, developed land has increased to 14 per cent of the UK land area, and at the same time UK food production has increased beyond all recognition.

"Farmers take their role as countryside managers very seriously. Therefore when we gave evidence to the committee we argued that the challenge is to develop a more productive countryside that is also attractive and accessible to wildlife, the public and is good for soil and water quality."

Among the steps taken by farmers to help ensure increased biodiversity is:

- **515,000 kilometres of hedgerows and another 90,000km of stone walls in England and Wales;**
- **92 per cent of farmers have hedges on their farms and 82 per cent cut them at specific times to avoid nesting birds;**
- **53 per cent of cereal farmers have used beetle banks or field margin management to encourage natural predators;**
- **72 per cent of the agricultural managed Sites of Special Scientific Interest were in favourable or recovering condition in 2007;**
- **Farmers in England are growing wild bird seed mixtures on more than 5,000 hectares;**
- **The rapid decline in otter numbers from the 1950s to 1970s, with pollution of watercourses being one of the contributory factors, now appears to have halted and sightings are being reported in former habitats.**

NFU Vice President Paul Temple

Mr Temple said, "We believe that the widespread uptake of Environmental Stewardship which together with classic schemes now covers almost 65 per cent of the eligible agricultural land in England, is a keystone in rewarding farmers' care and management of the countryside and ensuring enhanced biodiversity.

"But we also accept that farmers will need to go beyond simply adopting ES agreements. Across the industry annual soil protection reviews are now standard, and participation in the Voluntary Initiative on pesticides, as well as adoption of new technologies such as precision farming and more efficient nutrient management, will all yield environmental benefits.

"But it is also important that a comprehensive and universally recognised suite of indicators are used to recognise progress across the environmental spectrum. The environment is a broad agenda and actions and measures must reflect this."

EU pest management restrictions to increase crop prices

A STUDY released by the European Centre for Agricultural, Regional and Environmental Policy Research (EuroCARE) concludes that new legislation being tabled in Brussels will have a profound upward effect on the prices European consumers pay for food.

The legislation will drastically reduce the pest management options available to European farmers and consequently yields will drop steeply, driving up prices.

According to the research, should MEPs push ahead with the new legislation set to replace Directive 91/414/EEC, so many critical pest management tools will be removed from use that prices for all agricultural produce are likely to increase, building on expert assessments for likely yield losses. In the worst case scenario, prices for cereals and vegetables could rise by 73% and 104% respectively across the EU.

Even the most conservative product-loss scenario examined by the researchers will to lead to price increases of at least 20% for key staples such as wheat and potatoes. This certainly applies in the UK where the worst case scenario could lead to wheat and potato price rises of 69% and 55% respectively.

"The price increases forecast in the study are not surprising, given the current pressures on food prices and the importance of the EU to international markets. The price increases forecasted in the study are also in line with recent experience. In 2007, for example, world wheat supply was about 20 million tonnes lower than in 2005 and prices went up by more than 100%", says Dr. Marcel Adenaeuer from EuroCARE, Bonn.

With such major impacts anticipated, researchers predict that much of European agricultural production could be lost to other countries, jeopardising the position of the European Union as a net exporter of key crops. For example, wheat production is likely to increase in USA, Mexico, Russia, Belarus and Ukraine as well as South Africa, China or Australia - as it drops in Europe.

Friedhelm Schmider, Director General, of the European Crop Protection Association, comments, "All crops need protection from disease and pests. If you remove the tools farmers use to protect their crops, yields will go down - and prices will go up. This research proves that banning pest management options will, in the end, hit consumers in the pocket."

Dominic Dyer, Chief Executive of the UK Crop Protection Association, adds, "Given the findings of the EuroCARE study and other similar reports from the UK, the Crop Protection Association, together with other key food chain organisations, are calling on the British Prime Minister Gordon Brown to urgently take up the need for an impact assessment with President Sarkozy and other European Heads of State at the European Council level."

Company urges the use of LPG for many farm applications

Crop drying facilities essential say Calor

WHETHER naturally occurring weather changes or global warming is to blame, the likelihood is that Britain's weather is set to get wetter.

With the floods causing a problem for many farmers again this year, Calor urges farm managers to ensure effective and efficient crop drying methods are in place.

The company say they have been assisting farmers by providing a reliable bulk fuel supply for over 70 years and have a proven track record in the agriculture market. Calor liquefied petroleum gas (LPG) is an suitable fuel for many farm applications, not least crop drying where the most important factor in drying the crops is accurate and reliable control of heat.

LPG offers precise moisture control and an even heat, ensuring optimum drying temperatures are easily maintained and crops are dried evenly to the correct moisture content. Crops such as wheat, maize, barley, rape, peas, potatoes, bulbs and onions can all be dried economically and efficiently with LPG.

Calor's Kevin Houlden says farmers should take this summer's extremely wet conditions as a sign to be prepared for next year. He said, "Although we cannot foresee exactly what the weather will be like next year, the predictions from the experts are that wetter summers could be here to stay."

Kevin continued, "We typically get an influx of requests for LPG installations to power grain drying facilities in the summer as the drying season approaches. However, we are able to work with manufacturers and distributors to install LPG tanks and equipment any time of the year."

Compared with oil which is also sometimes used for crop drying, LPG is a cleaner burning fuel producing fewer carbon emissions and less smoke meaning it can be used in more sensitive of areas and will not taint the crops in any way.

Mannheim factory's 1,500,000th tractor

JOHN Deere's Mannheim tractor factory has released its 1.5 millionth tractor to a customer from the UK.

Simon Morgan, owner of a 308ha farm in Herefordshire who grows cereals, peas, beans, rape and forage maize for fattening beef, accepted the keys of his new 180hp 7530 tractor from Markwart von Pentz, president of John Deere's agricultural division for Europe, Africa and South America. The delivery of the 1.5 millionth Mannheim tractor comes in a year when factory production has hit an all-time record.

L-R: Simon Amos of JD dealer Alexander & Duncan, JDWM factory marketing manager Len Brand, customer Simon Morgan, JD agricultural division president for Europe Mark von Pentz, JD md Richard Johnson and JD tractor product manager Gordon Day

Simon Morgan is a customer of Leominster dealer Alexander & Duncan Ltd, who have represented John Deere in Herefordshire and Worcestershire for more than 40 years. The Morgan family has bought and run John Deere equipment from the dealership throughout this time.

The Mannheim factory started to manufacture tractors in 1921. The first machine was a one-cylinder crude oil tractor, the famous LANZ Bulldog HL12, which developed 12hp.

Today John Deere is Germany's largest agricultural equipment manufacturer, employing more than 5600 people in total. Last reported sales of all German units amounted to 2.4 billion euros (31 October 2007).

Maintenance free bearing units for seed discs

AN angular contact needle roller bearing unit for seed discs has been launched, which its manufacturer says not only offers high load carrying capacity and tilting rigidity, but also provides farmers with a maintenance-free bearing that enables easier and faster seed disc installation and removal.

Precision bearing and automotive component manufacturer The Schaeffler Group has just launched a complete bearing system for agricultural seed discs, under its INA and FAG brands.

The angular contact needle roller bearing unit not only enables extremely high load carrying capacity and tilting rigidity to be achieved, but also provides a multi-lip cassette seal, which reliably protects the bearing against contamination and prevents loss of grease. The clearance-free units are therefore supplied with the maximum quantity of grease, ensuring maintenance-free operation without any downtime.

In addition, the bearing unit is protected against the harsh operating environment by Schaeffler's Corrotect coating, which increases bearing life significantly.

The ready-to-mount bearing unit enables faster installation and easier seed disc removal. Attachment screws for the seed discs are already integrated in the flanged bearing. The seed disc is initially attached to the bearing. Afterwards, the entire unit is screwed to the machine quickly and easily via a central screw. Seed disc change simply involves loosening the screws.

Sowing the seeds for agriculture's future

A ground-breaking agreement between the University of Lincoln and LAMMA will benefit young people training in the field of land-based technology

THE Lincolnshire Agricultural Machinery Manufacturers Association (LAMMA) is working with staff at the University of Lincoln's Riseholme campus to encourage young people into the diverse technological side of the agricultural sector through the First Diploma in Land-based Technology.

LAMMA is working with staff at the University's Riseholme campus to encourage young people into the diverse technological side of the agricultural sector through the First Diploma in Land-based Technology.

As part of the agreement, which will initially run for five years, scholarships will be available to young people starting the course. The financial support for the scholarships and development of the course will be provided by LAMMA and will be worth around £56,000 in total.

Students will also benefit from the vast knowledge of LAMMA's members through talks and visits. This is the first time that LAMMA has worked on an educational partnership.

Bill Meredith, Head of Agriculture and Land-based Studies at Riseholme College said, "The University is delighted with the generous support provided by LAMMA for learners undertaking the First Diploma in Land-based Technology. By working together we can provide a programme which is tailored to the needs of employers and which will encourage new entrants - vital to the industry's future.

"Land-based Technology is a broad, dynamic sector which offers a huge range of opportunities for individuals with the appropriate skills. The First Diploma is intended to develop basic land-based engineering skills and to form a solid foundation for a rewarding career."

University of Lincoln Vice Chancellor, Professor David Chiddick, and President of LAMMA, Ray Larrington, sign the partnership agreement as University staff and LAMMA members look on

Commenting on the initiative, LAMMA President, Ray Larrington said, "One of the principal aims of the Lincolnshire Agriculture Machinery Manufacturers' Association has been to stage a show which provides small farm machinery manufacturers in Lincolnshire with a shop window for their products, at a reasonable cost. The gift agreement with the University of Lincoln will supplement this effort by helping to provide a pool of qualified young people who will have the relevant skills and expertise to help these same manufacturers to drive their businesses forward."

Students completing the one-year First Diploma in Land-based Technology can go on to specialise in a range of technological disciplines within the agricultural sector.

Steve Dennis, Workshop Unit Manager at Riseholme College, who teaches Land-based Technology students, said, "This agreement will give the students a direct link to the industry. It will provide them with access to a wealth of experience. These young people have got a future in an industry that is advancing faster than most industries in the world."

Land-based Technology student Craig Jackson (17) said, "I enjoy the course because I would much rather be in a workshop than a classroom. Before I started here I wanted to be a car mechanic but then I heard about this course. When I finish I would like to get a job working with land-based machinery."


Land-based Technology students learning their trade in a workshop at the University of Lincoln's Riseholme campus

LAMMA Show 2009 on course to be record breaker

WITH two months to go before the opening of the twenty-eighth LAMMA Show, which will take place on the Newark Showground on 21st & 22nd January 2009, all the indications suggest that there will be an increase on the number of companies represented at LAMMA 2008.

A spokesperson for the show said, "The wide diversity of exhibitors already taking space will ensure that virtually all aspects of today's farming business will be catered for. In addition to the wide range of products and services displayed, visitors will also have the opportunity to meet many of the smaller companies which are seldom represented at national farming events."

"Judging from the comments of visitors to the Show over the past few years, a visit to the LAMMA Show will be a very worthwhile, if not essential, way to start the new year."

For further details visit the show's website at: **www.lammashow.co.uk**

We're not bankers, we're engineers

IAgrE President, RICHARD ROBINSON says that to succeed in our industry in the current climate, good contacts in the financial world are essential

THE last quarter of the year has seen some of the most incredible economic activity the world has known - for those of us running businesses, we have had to learn how to become bankers, investment analysts and experts in judging the viability, not just of our customers, but of our own banks.

When asked for credit we always responded "we're not bankers, just engineers, please pay us for the work and commitment we made to you". It would be nice if we felt that any bank would take that attitude to us, particularly as we, as a family, have now made an £8000 loan to them.

We really ought to be getting on with what we know how to do, and only work with banks who seem to have a grasp of reality, as a result of which we will be changing soon.

Talking of grasps of reality, we had a Council meeting at Reaseheath (impressive new buildings, but a typical lack of car parking) and the next day I was invited to present the prizes at Brooksby (the best beef I have eaten at a 'do' for years). It is clear that moving the meeting around the country is a good idea and the Emails arriving over the weekend should bear fruit quite soon, thank you to all who attended and contributed.

Richard Trevarthen had laid on a tremendous prize giving and it was a great honour to shake so many hands that had clearly done real work. The apprentices matched their pride in achievement with a pride in their appearance which will undoubtedly give them confidence in their future career path. We may be taking a convoluted route back to well tested methods of training, hopefully with a common syllabus recognised by all manufacturers (who are the customers after all).

Following our principle of getting the right tool for the job, we recently hired a Box Rake from Tom Jones (see *www.blec.co.uk*) as we had piped in some ditches and needed to tidy up our mower test area. Fortunately we had some dryish weather, but the clay was still sticky, nevertheless the machine did a brilliant job and left a smooth level stone free seedbed - all we need now is some relief from the rain!

This experience underlies a principle which is really self evident in our business, we need engineers who can operate, design and service machines. You have to take practical experience, or at least get out in the field with those that have it, and take the lessons back to the CAD screen to get the product right. I remember visiting the late Roger Dowdeswell who remarked "it's funny that every time we make something more accurately it turns out to be cheaper", so, if ever there was a case for investing in better manufacturing equipment to make better components, this is it.

Now, going back to my original point, who has got the ****s to go out and invest in, not only new, tools, but actually the best you can get. We visited the Rover pressing plant in Swindon about nine months after BMW had taken over from BAE/HONDA.

New presses had been installed and we were interested to discover the amortisation period for capital plant. Under BAE alone they had to recover costs in 12 months, with HONDA in charge (and what a pity they aren't still) the period was five years and under BMW up to ten years could be used. With current progress in developing new machines and especially software driven CNC ones, I suppose that you should be looking to replace anything over five years old, but in our industry that is clearly impossible as weather, commodity prices and political ineptitude remove any vestige of certainty. We all need to plan for a long term future where continuous investment in people and machines can be maintained, NOT the on/off arrangement we have now.

From recent conversations with banks it seems that they get new rules every day which prevent them acting with anything resembling the freedom they once had, fine when they were lending 120% of the value of property, that never made sense, but we need competent people to back new business, confident that not all will succeed, but most will. Our best bank managers always wanted to walk round our workshop and the 'graveyard' (we all have one, don't we?) to get a feeling for what we were doing. I still like to do this when visiting our customers, the thickness of dust is a good clue to stock rotation, and well maintained forklifts with grease coming out of pivot bushes give more clues.

For those of you contemplating starting your own business, good luck, I recommend finding a sponsor with real business experience to help, as good contacts in banking, insurance, logistics and mobile phone contracts are essential.

In the meantime I sincerely hope 2009 is a better year than 2008 has turned out to be.

Richard Robinson, CEng, FIAgrE
Managing Director
Autoguide Equipment

LETTERS to the Editor

FEG 2008 Symposium

THE Forestry Engineering Group (FEG) celebrated their 20th anniversary by tackling the topic of 'Forestry as a Business', at their symposium on 31st October 2008.

They were fortunate to attract Dr Jan Fryk, Managing Director of Skogsforsk, and Prof Glen Murphy from Oregon State University, two of the most respected international figures in our industry, as keynote speakers. Their topical knowledge, gleaned from extensive international travel, enabled them to speak with credibility on the forest strategies for developed countries competing on the world stage.

They extrapolated trends from the past, took account of current trading difficulties, and looked expertly to the future to give those who attended the Symposium a unique insight into what they should be concentrating on now to prepare for the future. The deliveries were so informative and well received that the Chairman, John Lyons of Coillte said when they finished, "If anyone has to leave now it has already been well worth their attending."

The morning Session was completed by Luca Stoppino from EFESO who convincingly explained the advantages of adopting Lean Management. In the afternoon another five outstanding speakers from home and abroad tackled operator training, machinery for the future, trees for the future, roads for modern forestry and the importance of research in our now sophisticated industry. Generally these contributions aligned well with FEG's policy of highlighting practical approach solutions based on applied research.

FEG believes that people on the ground are most responsible for making forestry profitable. Thanks to the afternoon speakers Phil Higginbotham (Callendars), Jari Mennala (John Deere), Wave Tyrrell (FCE), Elspeth McDonald and Steve Penny (Forestry Research).

FEG was pleased to welcome guests from a number of organisations including the Institute of Chartered Foresters and the Institution of Agricultural Engineers and others who recognise the contribution that FEG makes to the industry through their Symposia.

Next year FEG have plans to hold 2 Symposia on the 10/11th March in Dublin/Wicklow and our annual event in September at Newton Rigg

FEG is a Specialist Group of the Institution of Agricultural Engineers.

Jim Christie, FEG Chairman Elect

Speakers at the symposium included Dr Jan Fryk, md of Skogsforsk, Prof Glen Murphy from Oregon State University and Luca Stoppio from EFESCO

Floodline response

IT is good to see members of the public taking a more educated view and realising that 'hard engineering' will not solve all the flooding issues.

And, I must point out that I will not be the first to suggest that "soft engineering" techniques will, as I don't believe that to be the case, but they do give a good starting point.

May I direct you to a report that Professor Dick Godwin and I wrote under contract to the Environment agency back in 2003 relating to reducing flood flows in the Parrett Catchment Godwin, R.J and Dresser, M.L. (2003) "Review of soil management techniques for water retention and minimising diffuse water pollution in the River Parrett Catchment." Environment Agency R&D Technical Report P2-261/10/TR. ISBN 1844321460.

It is available from the EA website, http://publications.environment-agency.gov.uk/epages/eapublications.storefront and enter product code SP2261-10-TS-E-E to download the full free PDF version of the report or you can purchase a hard copy from any bookstore by quoting the ISBN.

Incidentally, I am now living and working in the North Island of New Zealand, and we are going through exactly the same process here, so its a world wide issue, especially if some of the climate change predictions are close to the truth.as we point out in the report, "Selected land management practices can increase the amount of surface storage, rate of infiltration and capacity of the soil to store water (Leopold and Maddock, 1954; Schwab et al., 1993; Hudson, 1995)" so its not a new idea, just that no one seems to be listening.

But the best bit I leave till last ...."Soil management practices in the upper parts of a catchment may relieve certain runoff problems. Schwab et al. (1993) state that 'because downstream floods on major streams are more spectacular and damage is more evident, floods in upstream areas are often neglected'".

Dr Marc Dresser
CEnv, EngD, BSc(Hons), MIAgrE, MIPSS, MBSSS
University of Waikato

SOMETHING ON YOUR MIND?
Write to the Editor at: Landwards, 25A New Street, Salisbury, Wiltshire, SP1 2PH
or email chris@nelsonpublishing.co.uk

Agricultural research

I READ Geoffrey Wakeham's piece about the need for more research in agricultural engineering (*Landwards Autumn '08*). Though I agree in principle, I feel he has over looked a number of obstacles.

1 Is there anyone demanding a particular programme of research? There seems to be no one coordinating the industries needs.

2 In the past, he has stated that graduate agricultural engineers are in short supply. Are there any good engineers wishing to spend three or four years on a less than generous salary, at a critical time in their private lives, when industry will offer then a reasonable income and a long term career?

3 Having become a Doctor of Science are there any jobs in industry for someone who has so narrowed their expertise. New jobs as lecturers in agricultural engineering must be rare.

4 With the closure of the two Silsoe sites with dedicated research labs, are there any research facilities left in the UK capable of carrying out significant research?

5 With reduced funding to Universities and colleges do teaching staff have enough time to provide a good educational experience as well as carry out research?

6 Has official action and its acceptance by industry leaders, destroyed any chance of resurrecting a meaningful research community.

'Despondent of Dover'

Bio-Diesel Insurance

I WAS interested to read Mr Cholmeley's letter regarding insurance for vehicles converted to run on bio-fuels (*Landwards Autumn '08*). This is not an area I have any experience in but it has not stopped me having an opinion.

My view is that bio-fuels produced from especially grown crops need to have an in-built charge for environmental damage and for the loss of food crops that might have been grown on the land used. On the other hand, fuels derived from truly waste materials should be support by every one.

The problems of losing any financial gain from the first 600 litres used due to extra cost of insurance must make all but a few consider converting their vehicles.

However, insurance companies are very wary of insuring anything where they may be at risk beyond their normal experience. In the case mentioned of a twin fuel system the technology is well understood and I am sure that in the past, when similar systems were fitted as standard, insurance was no problem. The insurers knew the systems would be fitted to an acceptable standard and they could recover their costs from the manufacturer if faulty fuel equipment was the cause of any claim.

The current problem may be that any competent mechanic as well as incompetent mechanic can carry out the adaptation. There could be an increase in claims and these could be heavy. The chance of recovering the cost of such claims from individual mechanics will be minimal.

What are needed are commercially viable processors producing a consistent standard product accepted by vehicle manufacturers and registered garages fitting manufacturer-accredited conversions. Until that is the case, insurance companies will be reluctant to cover such vehicles.

If manufacturers are genuine about their green policy statements they would put in place such schemes. However, would such action price the fuel out of the market?

Geoffrey Wakeham

Pre Budget Report 'limited value' to agriculture say NFU

THE NFU has described the recent pre-budget report as 'of limited value' in helping agriculture play its part in driving forward an economic recovery.

Although the package contains a number of welcome provisions say the NFU, it by-passes the measures that would have set farming in good stead during a downturn.

Commenting NFU President Peter Kendall said, "Our acid test for today's pre-budget report is whether it will overall boost the competitiveness of UK agriculture and the agri-food sector. We will need to study the detail carefully but overall we would find it hard to come to this conclusion.

"Still, there are a number of commendable parts to the Chancellor's statement, together with some matters of concern but several missed opportunities. It is good to see Government focusing on how it can boost small and medium sized enterprises as a cornerstone to economic recovery.

"Farming is an integral part of the SME community and in this respect we welcome proposals for a temporary tax relief on vacant property, to delay the payment of tax bills, to introduce a substantial small business finance scheme and allowing SMEs to offset losses against profits made in the past three years.

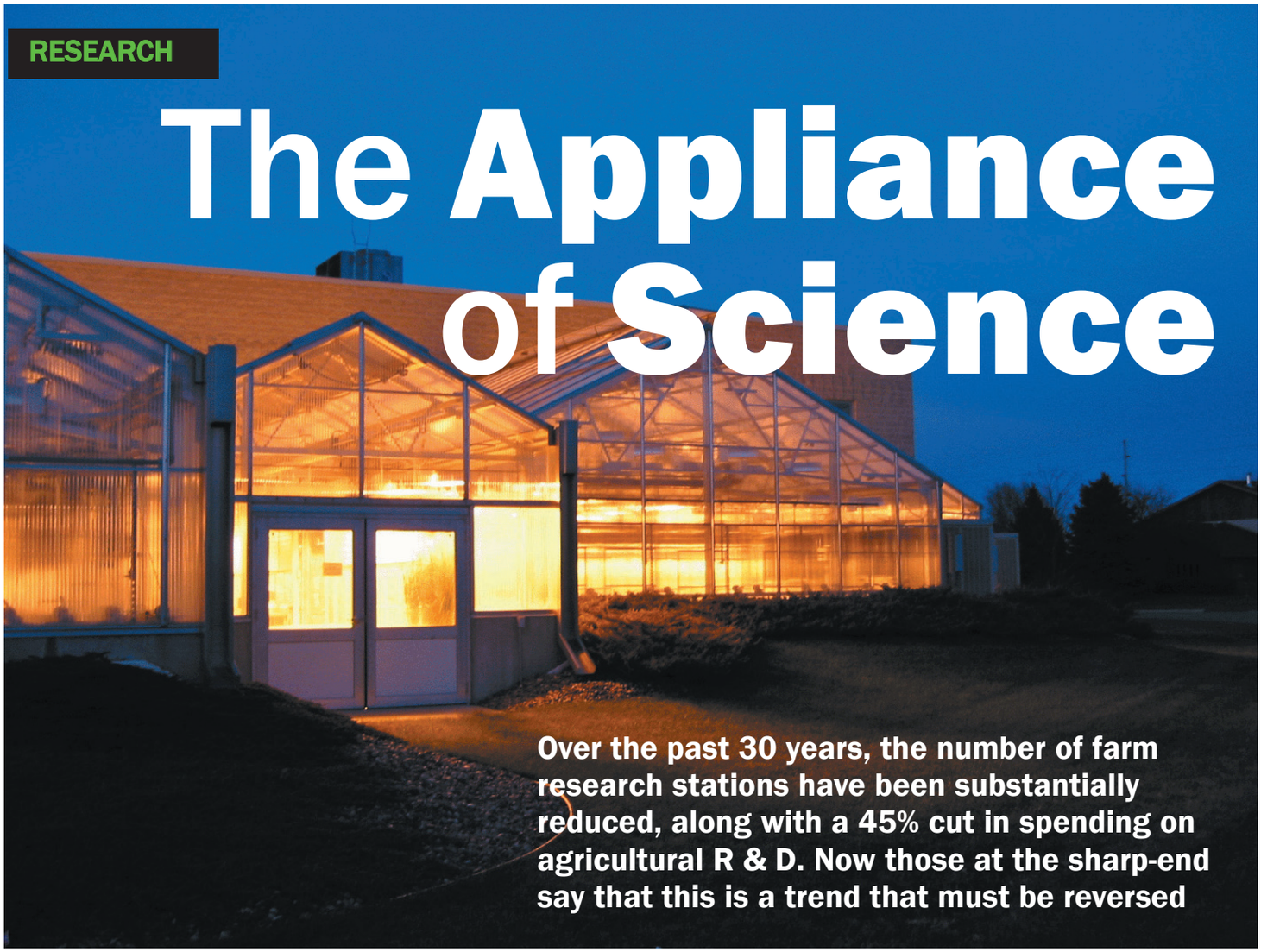
"On the other hand, we are concerned that an increase in employers' national insurance contributions by 0.5 per cent from April 2011 could adversely impact on competitiveness. Proposals to delay and decrease the rate of increase of higher Vehicle Excise Duty (VED) for 4x4s are welcome - these proposals would have disproportionately impacted on farmers who rely on such vehicles in their businesses.

"The report recognises the importance of stimulating investment in renewable energy and therefore the decision to extend the renewables obligation by a further 10 years to 2037 is welcome.

"It is a shame however that the Government appears again to have ignored our plea for greater fiscal incentives to encourage farmers to invest in environmentally beneficial capital works through a reintroduction of the agricultural buildings allowance (ABA).

"Although Government must play a decisive role in stimulating economic recovery, it is industry itself that will be the driving force. Farming can play an appreciable part in this, provided it is not encumbered by unnecessary regulatory burdens, has the backing of the banking sector and a much greater appreciation from its retail customers."

The Appliance of Science



Over the past 30 years, the number of farm research stations have been substantially reduced, along with a 45% cut in spending on agricultural R & D. Now those at the sharp-end say that this is a trend that must be reversed

NFU calls for increased research funding

NFU President Peter Kendall has reiterated calls for more government funding for agricultural research and development, insisting, "We've had a 45% cut on agricultural R&D in the last 30 years. This is madness when you think of the challenges we face."

Interviewed by John Humphrys for Radio 4's Today programme recently, he said that research into precision farming technology and plant breeding was vital to meet growing global demands.

A soon to be published report from the Government's Chief Scientific Adviser John Beddington suggests output could double or even treble in the years to come, with better farming techniques.

Mr Kendall responded, "We need to have the tools to make sure we can produce more food while not damaging the environment.

"We've gone from having 17 research station farms in the UK down to three in the last 30 years.

"This is actually at a time when you look at all the global dynamics of climate change, population growth, water scarcity, and demands on our land for energy."

Asked what could be done, he added, "We're talking about precision farming technology. This is using satellite guidance systems to make sure we put our products in exactly the right place and exactly the right quantity.

"Precision targeting of water, into plants individually. Using waste products from our livestock industry to provide the fertilisers for our cropping industry.

"We hear so much talk about climate change and the challenges of a richer global population, the demands on our soils for energies that actually to cut research and development is madness."

The NFU recently launched *Why Science Matters for Farming* - a campaign to highlight the ongoing need for research and development.

The introduction to the report says, "Science has transformed farming from a small-scale, largely subsistence activity into an industry which,in the UK, produces over 60% of the food for a population of 60 million and is the core of a farming and food sector worth some £80 billion a year."

"There are some incredible stories from the past century about how the application of science to the production of food enabled farmers and growers to feed a rapidly growing population. New machinery, from the double-furrow plough to satellite guided combine harvesters, has played a critical role in increasing yields, as have artificial fertilisers, crop protection products and veterinary medicines."

"Genetic improvement has been vital, with selective breeding of both plants and animals allowing significant improvements in productivity. Techniques for managing land, plants and animals, and the inputs used, have been developed and improved significantly. And this is true of all sectors and all production systems, conventional and organic alike."

"If the challenges of the past have mostly been around productivity, to keep pace with population growth and provide food security, those of the present and future have a new dimension. Farmers and growers must continue to increase their productivity, not at the expense of the environment, as has sometimes happened in the past, but in harmony with it. And just as science has been vital in meeting the old challenges, so it will be even more important in the future."

"This is why science matters for farming."

The **answer** lies in the **soil**

WITH over 100 published research papers and reports on a range topics from soil quality to improved mechanisation, nobody is better placed than Professor Dick Godwin to provide an objective view on the future of food production. Landwards editor CHRIS BIDDLE talked to him about the issues at stake.

THOSE who recall the Kenneth Williams character, Arthur Fallowfield, in the cult radio series *Beyond Our Ken* from the 1950s will remember his catch-phrase of "The answer lies in the soil" delivered with delicious West Country innuendo.

Half a century on, the phrase has taken on much greater significance as the world faces up to the prospect of doubling food production over the coming decades.

The ways and means on how this is to be achieved is taxing the mind of experts around the globe.

The resources are most definitely in place, the technology is available, but as in so many areas of life, politics and pressure groups can stand in the way of progress.

How is the balance between environmental considerations and production methods? Where is the considered debate about GM food? Crops for fuel or food? The future funding for research?

One man currently at the forefront of such debate is Professor Dick Godwin, for many years Professor of Agricultural Engineering at Cranfield University and former President of the IAgrE.

Although nominally on the cusp of retirement, he appears to be busier than ever.

In addition to his roles as Visiting Professor at Harper Adams and Professor Emeritus at Cranfield University, Dick has just been appointed Visiting Professor of the Czech University of Life Sciences and was recently given an honary doctorate by the Slovak University of Agriculture.

In recent months he has also found time to co-author a major report on the challenges of increasing yields whilst reducing inputs and the issue of soil quality which was commissioned by the Royal Agricultural society of England (RASE) *(see following pages)*, as well as presenting a paper on The Critical Role of Engineers in the Production of Agriculture to the Royal Academy of Engineering.

All this comes at a time when a number of other farming organisations are actively pushing the need for research in myriad reports and campaigns such as the *Why Science Matters* initiative from the NFU.

So my first question is whether there is enough joined up thinking in the agri-sector or are we in danger of fragmenting the debate with all these reports?

"Quite honestly, I did not know about the NFU report whilst preparing my report for the RASE," he says, "and I think vice-versa with the NFU.

"And that probably is a reflection of the state we are in. A group of well-meaning and knowledgeable people - coming to the same conclusions. Maybe that's not such a bad thing but there ought to be more cooperation and debate between the various bodies if we are going to get the message across strongly enough".

"Given the right initiatives, we can feed the world, but it needs someone to turn the key.

"The developed world, after a period of sustained economic growth, has taken food production and availability for granted.

"That was also the case in the 1920s and 30s in Britain and it took Adolf Hitler to change the thinking for a period of 2 generations.

"However, a generation of plenty, mobilised by financiers, soon forgets the problems faced by their grandparents, and a number of issues should now shake the population and the politicians, into reassessing this *lasse faire* policy.

"None of us want to see the world go to war over food, but it could happen. We are faced with an increase in world population of 50% and potential changes in diet in Asia, as peoples living standards rise, could result in an anticipated demand for a 100% increase in food production by 2050.

"But before we tackle that prospect we need to get the balance right.

"This is exemplified by the fact, according to Professor Robert Thompson of the University of Illinois, that currently 18% of the US maize production accounts for 60% of all of the international maize trade. But much of this supplies the demands for fuel production for both bio-mass for power generation and for processing into bio-ethanol.

"When all the proposed ethanol plants in the Mid West of the United States are operating, an estimated 40% of the maize harvest will be consumed in the production of 140 billion litres of fuel per year for domestic consumption!

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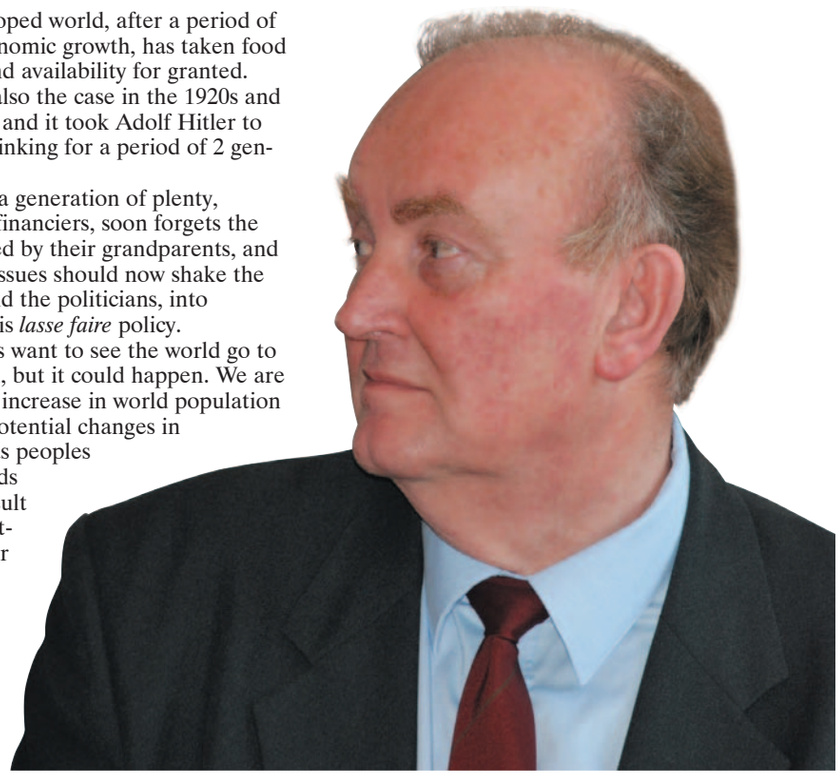


continued . .

"THEN there is the issue of climate change which will have an impact, and I believe no one currently knows the effect of this. It will be true that there will be shifts in incoming radiation levels, temperature and rainfall distribution and so we will see a re-distribution of crop type and varieties to accommodate these changes.

"And sadly for an island nation like Britain we will see significant coastal margins lost to the sea.

"This will of course impact on water supply, or the shortage of water. Improved storage and distribution methods need to be adopted, alongside novel application and control procedures.

"I learnt last month that in order to make a 0.2 litre cup of tea it takes 35 litres of water. On the other hand we can design a fairly efficient system such as that in Britain where 1% of the water extracted from the rivers irrigates 4% of the crop area and produces 20% of the crop value and as a result 1000 farmers in Eastern England supply 1/3 of the potatoes and ¼ of the fruit and vegetables consumed in Britain.

"The world has a right to be worried about the problems of water, the cowboys in the USA would say that - 'whiskey is for drinking and water is for fighting over!'

. . I learnt last month that in order to make a 0.2 litre cup of tea it takes 35 litres of water

"Let us hope that they are wrong but many say that currently the issues surrounding water are more immediately critical than those of food.

"Added to all of these points is the pressure on fertiliser resources.

"If we turn the clock back 100 years there were key agronomists and politicians who were suggesting that there would be insufficient food to feed the world in a further 20 years, however, that was before the Harber-Bosch process became available to fix nitrogen. The problem here is that the Harber- Bosch process requires very significant energy inputs and the production and cost of nitrogen fertiliser is linked to the availability and price of gas.

"Currently it is estimated that 55% of the nitrogen in the system comes from this process and in so doing has saved about 25% of the world population from starvation and prevented war. The other macro nutrients are mined and as such are a fixed resource and are in increasingly shorter supply."

SO with all these issues at stake is there a Godwin Blueprint that could used as a template for maximising food production?

"That's a tough one," says Dick Godwin, "but I am convinced that we need to develop creative and novel methods to feed and fuel the world.

"In my paper to the Royal Academy of Engineering I concluded that with a coordinated initiative we could meet the challenge of 50% increase in food production over a twenty year time frame. That was without including the major advances that could come from the acceptance of genetically modified crops, which should be developed to produce a similar if not higher yield with greater efficiency in their use of water and fertiliser. I believe that this improvement could come from:

- Improved soil management, the reduction in compaction through controlled traffic and other methods for reducing vehicle contact pressure with the soil.
- Improved land drainage.
- The utilisation of less fertile land not currently operating at full capacity.
- The use of precision farming methods to redistribute and save fertiliser and water, the application of the concept of spatially variable inputs to irrigation is still in its infancy.
- The reduction of post harvest losses in some regions of the world of about 40% from improvements in crop storage and handling systems.
- The extension and further development of proven practices to developing regions.

"In summary this means that we need to double the yield on 12% of the worlds land mass, using less water, less energy and low emissions.

"Hence we need good agronomists, soils and livestock specialists and agricultural engineers to design new systems for agriculture and to ensure that the messages are delivered to the farmers with appropriate extension methods.

"In the west we have been fortunate that over the past 20 years we could focus on environmental issues - almost at the cost of production - as there was an adequate supply of food.

"Thankfully we can take these results and integrate them into our future progress, so that we can produce food in an environmentally sustainable manner.

"It is not a question of the environment at the expense of efficient food production, the two issues are intrinsically linked.

"It is important that we get this message across to the politicians as many still think we just buy food from Tesco and they source it from the cheapest location - and that free trade will prevail and we will all be rich enough to purchase our needs on the international market.

"There are about 5 major international locations where environmental conditions are appropriate for the production of the major crops, without dependence upon irrigation. Thankfully greater Europe is one of them, and as such Europe must play its part and continue to develop its agriculture."

. . many politicians still think that we just buy food from Tesco

Bringing us back to the UK specifically, the phrase 'food security' is bandied about. The report about to be unveiled by the Government's chief scientist, John Beddington that says that the UK could treble or double agricultural production in the years to come with better farming techniques. So do we have the resources and capability to achieve that?

"Undoubtedly," says Dick Godwin. "I have seen figures that suggest that we are 58% self-sufficient now, from a peak of around 70% thirty years ago.

"If you take back set-aside land, there is still a lot of relatively under-utilised farmland in this country, and with improvements to drainage, soil compaction and the like, it really doesn't need to be a doomsday scenario. The UK could easily produce enough wheat, oil seeds and sugar to feed the populace - and forget about bananas, bendy or not!".

Finally, you've outlined your wish-list, but is there one thing that you would focus on above all else?

Dick Godwin paused. "Yes, it is simply this. That we find enough talented people to carry on the work, the applied research, to make all of these things happen.

"Without the people, it won't happen. You can procrastinate and debate the issues for ever - but if there are insufficient people to deal with the ways and means, then everything is for nought.

"History has shown a clear link between investment in research and development and the continued improvement in crop yield and also the rate at which it occurs."

The industry is fortunate in having talented free-thinkers the like of Dick Godwin. His greatest legacy will surely be that others step into his shoes - sooner rather than later.

Practice with Science

Farmers face the challenge of increasing yields while reducing inputs, improving soil health and generally enhancing the environment. The RASE commissioned a report to understand how realistic these demands are in the light of current trends in soil and water management.

THE UK's soil and water research base has diminished catastrophically from its peak and is now failing to provide the required support for the nation's farmers and land managers.

There is also little connection with production agriculture and apparently no coordinated vision for applied research.

That is the conclusion of a report published by The Royal Agricultural Society of England (RASE) and written by five of the country's leading soils scientists.

Lead author, Professor Dick Godwin, said it is not just the report that should make people sit up and take notice but the reason it was written.

"British agriculture is in real danger of abusing its most precious asset, the soil on which it produces the grass for livestock and the crops for food and energy that are now in such keen demand by a burgeoning population both at home and abroad.

"Soil science departments have closed around the country. Key scientists have left to go abroad or retired. Post graduate work has all but disappeared"

Professor Godwin added that without more research into how soil will adapt to a changing climate, growing food could become more difficult and flooding could increase. "I think as far as production is concerned at the moment we are managing to produce a reasonable amount of food from our own resource - but we could do better than that and as populations increase around the world we need to do it.

"I think the major concern of the Royal Agricultural Society of England in commissioning this report was really 'Where do farmers get their advice from, where do they get new applied research?'"

He said the challenge was to make sure farmers were able to access new advice - in a useful fashion - to help them secure food supplies in Britain for the long term.

"The immediate future depends on using the storehouse of applied research and development effectively. It requires concentration on good practical knowledge and technology transfer rather than blue sky research.

"A change in national policy is needed from predominantly environment-driven to production in an environmentally sensitive framework."

BACKGROUND

IN the main, today's soil scientists are working in areas which concentrate on environmental care rather than productive agriculture.

Since the mid 1980s, when Government withdrew financial subsidy for field drainage and the decline in farm profitability began, soil and water management has slipped down the priority list for both managers and policy makers.

At the same time, the research, development and advisory effort in soil and water management has gradually reduced.

Currently, due to policy changes and economic pressures linked to the retirement of key applied physicists and engineers, there is a much depleted professional body of specialists who can address the research, extension and training issues required to support the farming community and work with the environmental bodies.

The career structure for new entrants to these professions is poorly defined, and this discourages entry. Immediate attention needs to be given to the provision of a small cohort of professionals that can supply the necessary expertise, whilst there is sufficient time for them to be mentored by those (now mostly retired) with a proven field record.

However, there is a considerable store of fundamental research information available and whilst there is a need for some further supplementation, the prime requirement is to use and develop this existing information, linking in with field experiences elsewhere, to address current problems.

Future emphasis, therefore, needs to be given to applied research and development, conducted by personnel with a good understanding of agricultural and environ-

continues over

mental needs who can 'design' innovative solutions to practical problems.

These professionals need also to be encouraged to provide extension advice and practical training for farmers and agronomists.

The specialists require suitable academic backgrounds in engineering or applied physical science including soil science together with a good base and support structure (possibly at colleges or universities or within a government agency) and need to be in regular contact with farmers and farming problems.

Q&A

Is the UK's soil and water management research capability 'fit for purpose' and does it have a vision for the future of the science and the needs of a changing UK farming industry?

UK soil and water research is not as it should be and has diminished catastrophically from its peak. Many key applied soil science, soil physics and engineering researchers have now retired.

There is little connection with agriculture and apparently no coordinated vision for applied research. Recently 'piecemeal studies' have been conducted where researchers 'grab' whatever funds they can. Internationally, the state of soil and water research is less robust.

The UK cannot 'buy into' other nations' research, especially as soil and water topics are very local site and weather specific.

There has been a significant move to relatively inexpensive computer modelling. However, models need validating with real data and cannot provide total practical solutions to applied research problems.

The good news is that a significant amount of good science and engineering has been conducted. It now needs to be applied to meet UK agriculture's changing needs.

What future soil R&D will be required to ensure the agricultural industry can meet the challenges of increasing output whilst reducing dependence on agrochemicals, pesticides etc and improving the environment?

The immediate future depends on using the storehouse of applied research and development, although some fundamental work will be needed. The main topics for UK research identified are:

Fundamental research

- An effective design procedure to identify risk and measures required to reduce runoff and control soil erosion.

Applied research

- Relationship between good field drainage and flood risk, including using soil for water storage and retention in both lowlands and uplands. Linking this to managing uplands for increased food and fuel production, whilst maintaining water supply, bio-diversity and carbon storage;
- Control of nitrates and soluble phosphates in drainage water
- Practical adoption of internationally well-tried soil conservation measures to reduce runoff and erosion without restricting mechanised field operations
- Improved methods for controlling runoff from tramline wheel marks
- Appropriate cultivation systems for 'novel' crops for a range of soil types
- Selection of tyre/wheeling management systems, including controlled traffic, to reduce compaction and the need for deeper tillage and tillage energy
- Application techniques and nutrient accumulation for farm wastes, composts and bio-solids to reduce fertilser demand
- Techniques for improving water use efficiency and precision farming
- The spatially variable fertiliser application to target inputs and reduce residual N
- Reduction in overall herbicide and pesticide applications

Does the UK have access to the necessary soil and water management resources (including expertise), given a background of cuts in R&D capacity and expenditure?

Physical resources:

Whilst there is some concern, recent moves of the Soil Physics Group from Silsoe Research Institute to Rothamsted Research; and Silsoe College and Soil Survey and Land Research Centre to Cranfield University, have resulted in new build and refurbished state of the art soils laboratories respectively.

The pending moves of world class soil engineering and recently completed off-road traction laboratories from Silsoe to Cranfield campus will result in new laboratories housing equipment for tillage, traction and compaction, and erosion studies.

The long term tenure of Spray applications Group laboratories currently at Wrest Park, Silsoe, a national gem, is currently being discussed with BBSRC. It is imperative that this world leading facility is transferred and then maintained.

The 'Soil Hall' at Harper Adams University College is a valuable national resource for teaching and short courses. Further investment would increase its value. ADAS is maintaining a presence at some former Experimental Husbandry Farms to undertake applied R&D.

Expertise:

This is of much greater concern. In the short term there is probably adequate staff expertise in environmental and biological sciences.

However, many key soil and water engineering researchers have now retired and there is a shortage of those with practical skills to 'engineer' sustainable solutions. This leaves applied research poorly served.

The biggest challenge is in renewing the pool of professionals from applied research to extension. These are not easy to find as they generally require a good knowledge of agriculture and have a sound science / engineering base.

How can UK soil and water management capability be sustained, provided with more resources and integrated with capacity elsewhere in the EU and the world?

A change in national policy is needed from predominantly environment-driven to production in an environmentally sensitive framework.

At the same time, a greater proportion of those with sound agriculture, science and engineering backgrounds need to be engaged in formulating the strategy.

Government, including Defra and the EA should 'bite the bullet' and source adequate applied work to ensure a national capability for food and fuel production, whilst meeting environmental requirements. This will reduce the UK dependence on international factors as solutions to soil problems are site-specific.

Are sufficient people being attracted to soil and water management and related areas as a career?

The answer is a very definite 'no'. Experience suggests that sufficient numbers could be attracted if there was a career structure and more job security.

The lack of postgraduate scholarships restricts the number of applicants and this must be addressed by Government agencies with help and input from the agricultural charities.

Is there a career structure which will help to retain them in the discipline/in the UK?

Currently there is no sensible career structure in the UK and in recent years it is probably only Cranfield University that has provided an 'academic' route. This has enabled the progress of a number of top quality masters students through to junior researchers and postgraduate teachers.

Those staying in the UK are, however, few. Nationally a career structure is needed to encourage graduates at all levels. Initially this is likely to be within the 'education' sector, but possibilities could exist in other bodies, eg the Environment Agency.

With such a body, a section could be established that allowed the needs of profitable production agriculture to be developed alongside those of the environment.

Consideration should be given to selecting a base for a pilot scheme. Harper Adams University College appears to have the key requirements, namely:

- The only undergraduate agricultural engineering department in the country
- A strong agronomy / plant sciences department
- A keen interest to develop its activity in soil and water management
- Opportunity for staff to be involved in training, teaching and applied research
- A large cohort of undergraduate students to undertake projects
- A central location serving England and Wales. Also close to Stoneleigh Park.

Is there sufficient capacity of the right quality in the education system to train the appropriate soil and water managers of the future?

The answer to this question is 'no and the existing capacity is diminishing quite rapidly'. The major problem is that the experienced professionals have retired and their successors are not obvious because of the lack of mid-career professionals to take on leadership roles.

Currently Harper Adams University College, with its mission fundamentally aligned to the needs of practical agriculture, is moving to position itself centrally in national agricultural strategy. However, there is a need to recruit new blood to undertake the educational role and have much more direct engagement with farmers in soil and water management.

It is critical that this is undertaken in the very near future so that the existing cadre of retirees can help mentor the incoming group. Currently Reaseheath College, in Cheshire, provides a progression of students from their First and National Diplomas into the HND/Foundation Degree and Degree programmes at HAUC in agricultural engineering.

The Principal of Reaseheath College is open to further discussion on extending these to encompass aspects of soil and water management providing satisfactory accreditation procedures can be established.

Are soil and water management issues understood and their importance taken into account sufficiently by policy makers?

The key major national issues are well understood by leading policy makers.

Where they require further assistance they refer to stakeholder and strategy forums which include ADAS, key universities, Rothamsted Research, Environment Agency and Natural England, consultants and the NFU. Certain issues, for example those concerning rising sea levels, are considered in future Foresight projects.

How can soil and related issues be highlighted to policy makers and advisors?

It is sensed, that the practical agriculture community believe that in developing government policy there has been insufficient focus on measures that ensure food security whilst meeting the soil, water and environmental objectives.

This deficiency appears to have arisen through a lack of connectivity between practice, science and policy. This is despite a Soils Advisory Forum with stakeholders from all these fields involved in policy development and implementation.

Bringing these parties closer together and providing an advisory mechanism would appear vital when the agricultural industry manages 72% of the land area.

FULL REPORT: www.rase.org.uk/activities/core_purpose_work/soil_full_report.pdf

Key Recommendations

- **Alert Defra and others to the issues and encourage Defra to move from its current largely environmental policy to one which embraces production within the environmental framework.**
- The RASE, with other parties, should attempt to raise £1 million a year for five years to stem the decline in professionals.
- **Encourage the development of research,training and professional accreditation at existing establishments.**
- Support the establishment of a pilot scheme providing a national centre for soil and water management and engineering.
- **Encourage universities and colleges offering agriculture and soil science programmes to include modules on soil and water management in their curriculum.**
- Collaborate with key groups to organise events, and produce a journal and electronic library of soil / water management.
- **Convene a conference for interested parties (including Defra and its agencies), farmers, charities, commercial businesses, practitioners, professional and educational bodies, to review potential techniques**
- The Practice with Science Advisory Group should nominate a champion / facilitator to work with agri-business to steer new initiatives and report to the Group.

Credit crisis for Christmas

GEOFFREY WAKEHAM considers how we as a nation got into the current financial situation and what we might do to get ourselves out of it

WE all saw it coming. We all said it could not last.

The clever masters of the universe in the city would soon have to pay the price. We kept on using our credit cards and remortgaging our houses. Many of us bought shares at the top of the market. We were sure all our savings were safe.

We were shocked by its impact when it came, but we all saw it coming, didn't we?

I am not sure we understand why we knew it was coming so we kept our fingers crossed and the nation kept on borrowing even if much of it was the government doing the borrowing on our behalf.

In some ways, what went on was not unlike normal trading.

In manufacturing someone overseas makes a product at a cost of one pound, it is sold on to an exporter; an importer then splits bulk, puts the product in fancy packaging, and sells it on for £4.50. The wholesaler sells it to a distributor and then on to the retailer. The customer buys a useful product that is available and convenient to acquire all for £10. He may think it expensive but he has what he wants and gets his tractor working again. The farmer creates wealth because of the process.

In the financial world, someone puts together a financial product worth a notional $10b and sells it on. After a number of steps where it is repackaged, split up and sold on at an increasing price it is still only worth $10b.

At some stage, there is no one else willing to buy any part of it and then it has no value beyond that initial value, if that. The current owners can only recoup a fraction of that value. They cannot fit it on to their tractor and finish harvesting their crops. It seems everyone borrowed money to trade, no one seems to have any easily accessible asset of real value. Wealth has not been created only dissipated.

We might question what wealth is. Financial products have no worth in themselves. You cannot eat them, keep warm by wearing them or burning them, nor protect yourself from the rain and snow with them. Cars and trains do not run on them nor do planes fly powered by a financial product. In the end, they are nothing but a series of ones and zeros in a computer whose perceived value is tied to the skills of boys and girls with limited skills. What they should do is support the growth of long-term wealth of a nation.

Wealth is created by turning clay into bricks and cement and building houses and farm roads, by mining ores and making cars and farm machinery, by growing fibres and spinning them into yarn and creating suits and work clothes and by growing raw materials to turn into engineering materials, fuel and food. Wealth is what we own and how we live and the best way to create that wealth rather than dissipate it is to turn low value materials into items for real and sustainable use.

A problem in this country is that we have used up most of our traditional raw materials. Most things we make for home consumption drain wealth out of our pool of resources. We do not seem to persuade enough overseas customers to buy what we have to sell. We do have resources and we need to make best use of them.

We have history in bucketfuls and beautiful countryside and these should be exploited to maintain and enhance the value of these assets through tourism. Rural communities need to coordinate and exploit these assets.

We have wind and lots of coast line to generate energy. Until oil and gas can no longer be extracted (for whatever reason), these assets of sustainable energy supplies are best seen as a long-term investment to be developed carefully.

We have coal to last us years but until clean technologies can be found it is best left in the ground.

We have land and a relative-

“A problem in this country is that we have used up most of our traditional raw materials”

ly benign climate. We have well educated farmers and a strong food processing industry.

Is this one of the ways of creating real wealth for the Nation? Adding significant value to renewable low cost raw materials and selling it overseas for people to pour down the toilet could be one way to go. Traceable foods can command a premium. Who wants to sample milk products from distant nations? What chemicals are sprayed on imported crops?

The aim should be to produce regional national brands with guaranteed quality for safety, sustainable processes and ethical production systems. The middle classes in Asia and in time Africa will seek out such products. They have the money and an intimate knowledge of the practices of the food chain in their own countries.

Europe and America are markets to be further expanded by having a clear message associated with and identifiable as produced under strict control in the regions of the UK.

There is a need to support those working in these areas to develop the necessary technologies and systems to produce foods to rival the best in the world for quality and traceability, produced and marketed under a high profile at an acceptable cost.

Some may hate the restrictions and controls that need to be put in place but the benefits to the economy and the countryside should far out weigh the problems of producing a product range that we can all be proud of, a range that leads the world.

There is one major problem to this as a way of saving the nation; we cannot feed ourselves let alone the world. Therefore, once the brand is established then we need to sell the technology and the systems around the world. Next step Commonwealth Foods UK Ltd.

I wish you all the best for a traditional Christmas and an improving New Year. As those who got us here said, “It can only get better”.

Bio Ethanol from waste plant material

PRODUCING energy by transforming crops into bio ethanol at a time when famine and food shortages affects large areas of the world’s population is clearly not a sustainable option.

But new technology which enables bio waste to be turned into bio ethanol means that much needed energy can now be harvested without damaging the food chain.

Ethanol, a popular type of bio fuel is traditionally produced by fermenting sugars present in plants such as corn and sugarcane with yeast. The process requires the use of the most edible parts of the plants which are rich in starch and certain types of sugars called hexoses, resulting in the loss of a valuable source of nutrition.

Following a project at Delft University of Technology researchers have succeeded in genetically modifying a strain of yeast that can convert bio waste materials like straw, woodchips and cornhusks into ethanol and a technical process using the yeast has been developed at the Danish Technical University. The technique opens up a previously untapped source of plant-based energy without compromising world food supplies.

Niro’s expertise in spray drying proteins plays a major role in the process by drying ethanol’s by product, yeast cream, decanted from the resulting slurry, into protein powder which can be used for animal feed.

The drying process is achieved in three steps:

- The yeast cream is concentrated to a point where the slurry at 60°C has a viscosity of approximately 150 centipoise. This concentration is achieved energy efficiently using a Falling Film Evaporator to a level of approximately 20% Total Solids.
- The concentration is then dried in a Spray Drying plant equipped with either rotary or nozzle atomization depending on the required properties of the final powder.
- The resulting powder is transported to silos for immediate use or packed into bags for storage or distribution.

Falling Film Evaporation

IN any industrial process operational cost must be kept under control and removing water from a substance can be a costly affair.

For example, heating 1kg of water 1°C requires 4.18 kJ and when heated to 100°C it requires further 2,400 kJ to evaporate, therefore the specific water evaporation rate is the energy used to remove a specific amount of water in the evaporation plant.

A Niro Falling Film Evaporation plant operating at low pressure and using thermal or mechanical recompression of vapour has a low specific energy consumption.


Food & dairy spray drying

Spray Drying

WHERE there are no particular property demands for the dried yeast cream powders Niro recommends spray drying using rotary atomization.

The powder produced using this method will have a bulk density of approximately 500 kg/m^3 and an average powder size of 100 microns, making it suitable for mixing with animal feedstock.

For more complex powder properties Niro recommends using a spray dryer with nozzle atomization for drying the concentrated slurry.

To keep the initial investment as low as possible in acquiring a spray dryer Niro recommends using the highest possible drying air temperature. This can be achieved using a direct gas heater to increase the temperature of the main air.

Niro’s Test Centres offer customers the opportunity to conduct feasibility studies, pilot tests and laboratory analyses. The Centres are equipped with the latest technology and the company is always happy to discuss new partnership opportunities and alliances even when a project requires expertise outside Niro's traditional services.

A Personal View of the Development of Timber Engineering in the UK

Dr Geoff Freedman BSc, CEng, CEnv, FICE, FIAgrE
HEAD OF DESIGN - FORESTRY CIVIL ENGINEERING

SUMMARY

THIS paper deals with the history and regeneration of timber used as a primary structural material.

The UK allowed the old skills to disappear but, today, we are leading the international field in some forms of stress lamination for bridges. There are a small number of Engineers working in the discipline but many more are needed if there is to be a modern revolution in Timber Engineering. Success can bring reduced costs and greater sustainability.

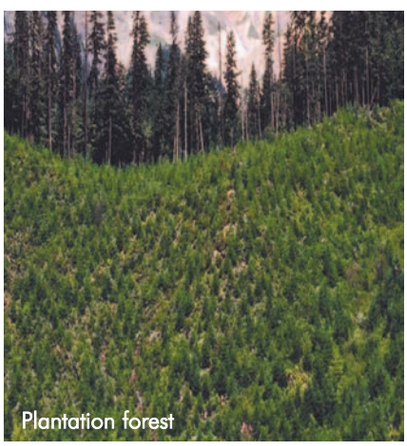
HISTORY OF TIMBER ENGINEERING

ONE hundred and fifty years ago we built with stone and timber, before steel and concrete arrived in quantity.

The skills were well honed and wide spread. Apprenticeships were the media for passing on those skills – a training system which evolved and fitted the period. The craftsmen who came from these training programmes took pride in their work and were well enough paid to live a decent life.

The industrial revolution changed much but the apprentice system endured. Working with timber moved on from housing and shipbuilding, to factories and machines.

Britain's presence abroad brought home many exotic species of timber- which extended the use of wood. Harder and more durable hardwoods made better machines, vehicles, piers and infrastructure. At this time the future looked bright.


Plantation forest

THE TWENTIETH CENTURY DECLINE

THE industrial revolution accelerated the use of steel and, in the last century, concrete. These new 'wonder' materials were seen as the only way forward.

This was a major error of judgement made by UK building designers. The new materials opened up new possibilities and did some of timber's work better - but steel and concrete were not always better. Over a very short period of time timber was reduced to a secondary structural material and sent the profession of Timber Engineering to the history books. We were left with a group of semi-skilled joiners who supplied a service to the building industry.

REVERSING THE DECLINE

DURING the past hundred years, plantation timber has become an industry and is now making an impact.


Timber ship frame

This is also true around the world and softwood is now internationally available at a relatively low price. This situation is likely to remain for some time as it is one product that does not require a great deal of capital to produce.

Virgin forests are available to provide more volume, but sustainability must be maintained by re-planting and avoiding ground damage. Timber is becoming a very competitive material in the resource-starved world.

PRESENT DAY

FOR the last forty years, we have lived with the promise of a developing a timber engineering industry in the UK.

We have been saturated by initiatives, forums, centres of excellence and examples of innovation - but no industry.

Timber engineering is still not properly off the ground in the UK. There is but one faculty in just one university, in the whole of the UK. It has only been established for five years and is fast drifting into becoming a centre for wood science because the Engineering students are not coming forward.

TIMBER AS A CONSTRUCTION MATERIAL

THIS aspect of the report considers:

- Why use Timber
- Species used for Structural Timber
- Properties of Structural Timbers
- Durability of Timber
- Strength of Structural Timber

OTHER AREAS OF CONSIDERATION

- Using Timber for Structures
- Stress Lamination of Timber for Bridges
- Factory Production
- Further Developments

CONCLUSION

TIMBER Engineering is working with the plantation timber coming on stream in great quantities, and at low cost, to take back some quality construction from steel and concrete.

These structures are not only competitive, they are sustainable and lightweight.

Landwards e-Xtra A detailed version of this report is available online from IAgrE e-Xtra at: www.iagre.org/landwardsextra.shtml

www.iagre.org

IAgrE is the professional body for engineers, managers, scientists, technologists and students in the land based sector

IAgrE Announces Student Competition

Young Engineers

Vehicle Performance Competition

What?

Given a set of standard wheels, a battery and maximum dimensions, create a remote or radio controlled vehicle to produce the best performance on a standard test track.

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When?

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tip TOPPS practice

For the past three years Training the Operators to Prevent Pollution from Point Sources (TOPPS) has been driving a campaign to inform, encourage and reinforce the adoption of a common code of best practice across Europe. SIMON COOPER explains

THE TOPPS project comprises twelve partner organisations funded by the financial mechanism of EU Life and the European Crop Protection Association.

The regional differences in culture and local agriculture have been accommodated under four regional clusters. The engagement of stakeholders: farmers, agro chemical and machinery manufacturers' organisations concerned with extension, training, the environment, water companies and government agencies: throughout the project has assisted the partners gain acceptance of proposals in the wider community.

The Water Framework Directive is the most substantial piece of European legislature underpinning water quality in all member states; the evolution of the Thematic Strategy on Pesticides will have considerable impact on the use and possible fate of pesticides in the environment.

It is from these roots that the project was fashioned with the intention of producing a unified approach to training and best practice across all partner states.

Only spray when moving at a calibrated speed is one of TOPPS' key points

For many farmers in the member states the risks of water pollution from pesticides is nothing new. Evidence of pollution of ground waters in Scandinavia was reported decades ago and catchment studies during the 1990s revealed an insight into the way that operator behaviour and application practices could affect the pesticide loadings in local water courses. The most notable of these studies in the UK being that on the River Cherwell.

In order to deliver a Best Management Practice or BMP acceptable to stakeholders across all partner states required a mammoth task of reviewing and collating all the local legislation, codes and advice notes gathered from project partners and stakeholders.

The resulting statements numbering over 400 were subsequently distilled to 104 key statements covering the six processes of application of pesticides, namely; transport, storage, before, during and after application and finally, remnant or waste management.

These statements, divided into 29 sub processes are the do's and don'ts and are supported by specifications to give the reader a clearer idea of how to comply on a practical basis.

These BMPs have been reviewed and agreed and accepted by the partners and stakeholders across Europe which is seen as a major achievement and the cornerstone of a common policy.

Delivered in the project language of English, the BMP has been translated into local languages and in the UK configured into an A5 booklet intended to be easier to refer to on a regular basis.

Extension and acceptance of these practices by operators carrying out the actual tasks of pesticide application is the measure of the projects ultimate success, and as the title says; Training the operator is a major goal. To support this a series of training slide presentations have been developed which can be adopted into the programmes of local training events carried out by partners, agronomists and agro chemical companies and extension officers as they feel fit.

Consisting of bullet point text with a mix of good and poor practice photographs, they mirror the BMP statements and specifications.

Producing materials for diverse audiences has been a challenge not least because some states have long standing extension and training programmes already in place. In these cases TOPPS has been seen in a supporting role, reiterate those already familiar practises or is a gentle reminder for those whose bad habits still linger.

In the UK the Voluntary Initiative has operated since 2001 with a remit for both diffuse and point source pollution, and is seen as a well established brand and network of trainers delivering materials during the winter training season. TOPPS has concerned itself only with point source pollution, cited as the area where the greatest benefit could be achieved across Europe, in particular in territories where application practices are less defined.

As part of the drive to bring something new to the table, video material and more detailed guidance notes on bio purification and sprayer cleaning have been produced.

TOPPS TIPS: Key Points Summarised

TOPPS Tips is a quick introduction to some of the key points that users of Plant Protection Products (PPPs) must remember in a shared quest to reduce risk of point source pollution

Transport

- To farm: Use your supplier's delivery service to get PPPs to your store
- On farm: Use secure, lockable box for transport of undiluted PPPs
- Use spill retaining loading/unloading areas
- Have mobile phone with emergency contact numbers ready
- Have spill retaining kit ready

Storage

- Use secure, identified and bunded store
- Have emergency numbers and procedures clearly shown
- Have emergency equipment - such as fire extinguisher and spill retaining kits - accessible for immediate use
- Only store PPPs that have a planned use

Before spraying

- Use crop protection management plans that identify risks to water
- Ensure operators are adequately trained and members of the National Register of Sprayer Operators [NRoSO]
- Ensure PPP to be used is approved for intended use
- Read product label carefully
- Identify sensitive areas such as Source Protection Zones
- Identify Buffer Zone needs
- Plan mixing, loading and cleaning sites at farmyard or field
- Check sprayer has been tested by the National Sprayer Test Scheme [NSTS], is clean, ready for purpose and all couplings secured
- Check sprayer is capable of being cleaned after use; preferably in field of last use or in an area of the farmyard such that rinse water is retained for later treatment
- Check sprayer with clean water for leaks, drips and where spray makes direct contact with equipment
- Use a route to field that is of least risk to water by avoiding fords and tracks alongside any sensitive zones
- Switch off pumps while travelling
- Use bunded area in farm yard for filling and have spill retaining kit ready
- Or site field-filling area at least 20 metres away from water and all sensitive zones.
- Use portable bunds. Vary location each season
- Avoid filling over hard surfaces where spills and splashes of PPP could be washed off to pollute drains and water
- Calculate the amount of PPP and water that is needed
- Only add water to sprayer using intermediate tanks or double check valves to protect mains supply from any contamination risks
- Never leave a sprayer unattended and never overfill tank
- Open PPP containers/packages and load sprayer without drips and splash
- Use induction bowls to avoid any unnecessary carrying and lifting of PPP

During spraying

- Only spray when moving at calibrated speed
- Never overspray water courses, wells and drains
- Shut off sprayer when turning
- Spray headlands last
- Maintain correct boom height
- Leaks and drips must be rectified as soon as it is safe to stop
- Avoid drift and never overspray buffer zones
- Avoid run-off by, for example, not spraying frozen or water logged soils

Waste / remnant management

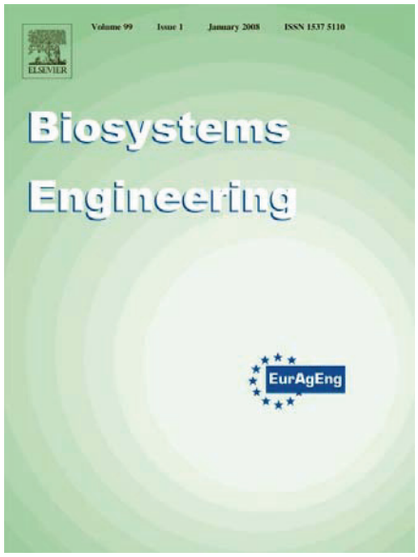
- Follow label recommendations or other instructions on disposal procedure for containers
- Participate in authorised recycling schemes for containers. Use www.wasterecycling.org.uk to find suitable contractors
- Never burn or bury containers or packages
- Separate out-of-date PPPs from the others and contact an approved waste disposal contractor
- Never wash unwanted PPPs down the drain and never bury them
- Reuse diluted PPP solutions if legally permitted
- Never dump liquids or solids containing PPPs where they can reach water
- Solid remnants - from processing diluted liquids / cleaning of filters / managing spills -
  -If biodegradable; store securely for further degradation if permitted.
  -If non biodegrad able; use approved waste disposal con tractor.

There are a number of checks operators are recommended to do before spraying commences

Harper Adams University College is the UK partner of TOPPS. Simon Cooper is UK coordinator for TOPPS with special interests in application and remnant /waste management. All training materials, guidance booklets and Best Management Practises can be freely downloaded from the project web site www.topps-life.org

Biosystems Engineering

***Biosystems Engineering*, owned by IAgrE, and the Official Scientific Journal of EurAgEng, is published monthly with occasional special issues.**



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For further details of the depth and breadth of articles accepted for publication in *Biosystems Engineering*, visit

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http://www.iagre.org/bioeng.shtml

IAgrE

EurAgEng

The Managing Editor of ***Biosystems Engineering***, ***Dr Steve Parkin***, has kindly summarised some of the papers published in the last three issues which he thinks may be of interest to IAgrE members

Biosystems Engineering

Volume 100, Issue 4, August 2008, Pages 511-515

Development of a yield sensor for measuring individual weights of onion bulbs

Bassam Qarallah, Koichi Shoji, Tsuneo Kawamura

Graduate School of Agriculture, Kobe University, 1-1 Rokkodai-cho, Nada-ku, Kobe 657-8501, Japan

Site-specific measurement of the weight of individual tubers, bulbs, and fruits on a harvester may enhance their market value and represent a significant advance for precision agriculture. An impact-based yield sensor was developed, consisting of two load cells, an acrylic plate and a polyurethane cushion, to determine the weight of individual onion bulbs through the impulse received by the sensor. A simple proportional relation was used to calibrate the sensitivity of the sensor, the precision of which was evaluated by standard and relative errors at calibration and validation. The experimental variables investigated under static conditions were the arrangement of the bulbs on the conveyor, the thickness of the cushion on the plate, and the clearance between the output end of the conveyor and the impact plate. The arrangement of the bulbs affected neither the precision nor the sensitivity of the sensor. With or without a 10 mm thick cushion on the plate, the precision decreased at the higher clearance. Practical precision was obtained (a relative error at validation of < 2.0%) with a 30 mm thick cushion regardless of the clearance.

Volume 101, Issue 1, September 2008, Pages 1-12

Minimising the non-working distance travelled by machines operating in a headland field pattern

D.D. Bochtis, S.G. Vougioukas

Aristotle University of Thessaloniki, Faculty of Agriculture, Department of Agricultural Engineering, Box 275, 54124 Thessaloniki, Greece

When treating an area of field using agricultural equipment, the field is usually traversed by a series of parallel tracks using a pattern established by the experience of the operator. At the end of each track the process is constrained by the ability of the operator to distinguish the next track to be followed. The introduction of commercially available auto-steering or navigation-aid systems for agricultural machines has made it possible to upload arbitrary field pattern sequences into programmable navigational computers and for the machines to follow them with precision. This new technology also offers a new perspective for improving machine field efficiency, since not all field traversal sequences are similar in terms of the total non-working distance travelled.

An algorithmic approach towards computing traversal sequences for parallel field tracks is introduced. This improves the field efficiency of machines by minimising the total non-working distance travelled. Experimental results show that by using optimum sequences, the total non-working distance can, depending on operation, be reduced by up to 50%.

Volume 101, Issue 2, October 2008, Pages 225-238

Simulation of three-dimensional airflow in grain storage bins

O.A. Khatchatourian, M.O. Binelo

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Computer Science Department, University of Cruz Alta, R. Andrade Neves, 308, 98025-810 Cruz Alta, RS, Brazil

A mathematical model and software were developed for the three-dimensional simulation of airflow through high capacity grain storage bins by considering the non-uniformity of the seed mass. To validate the proposed model, empirical relationships between air velocity and static pressure drop were obtained for compacted layers of several storage depths for soya bean, maize, rice and wheat mass. The software was written in ANSI C++ which is transferable to a variety of platforms. For the construction of 3D geometry and the generation of meshes free-of-charge software was used. The solver software generated a system of linear algebraic equations using the finite -element method. Three iterative processes were carried out: (1) calculation of a local permeability coefficient, using the pressure distribution in the immediately previous iteration step, (2) search for the system design point, located in the performance curve of the aerator fan, and (3) adaptation to refine the mesh. The simulations showed good performance. It was considered that the method could be applied to optimise the performance of existing grain stores and lower the engineering costs of new grain stores.

Andrew Manfield introducing the demonstration to the 50+ CTF members who attended, including farmers from Denmark, Sweden and Latvia

Controlled traffic farming

TIM CHAMEN, the national representative of CTF Europe Ltd, reports on their conference held at Askham Bryan College recently

OUR conference on 12 November at Askham Bryan College, York, which addressed the management of low input establishment systems, was attended by around 85 delegates from across Europe.

Fourteen commercial organisations, who are members of CTF Europe, provided displays around the conference hall that received a steady stream of interested parties.

The subjects of fusarium mycotoxins, blackgrass and slugs were addressed by leading national experts, and although not providing us with immediate solutions, gave us insights that together could be a considerable help in future management.

We were also introduced to controlled traffic farming and the machine autosteer technology needed for its efficient realisation as well as a glimpse of the systems used by practitioners.

Sincere thanks to our sponsors, HGCA, Masstock, De Sangosse and Bayer Crop Science who covered our speaker costs.

On the second day, CTF Europe members travelled to East Yorkshire, where our programme was revised to take account of the rain forecast for midday. Eight no-till drills were put through their paces, (see picture above) and all performed well on the controlled traffic land provided by the host farmer, Andrew Manfield.

Because we brought forward the demonstration, there was little time for prior setting of the drills, some of which had only arrived on site that morning. To their credit, all managed to reach the bottom of a 500m stretch without stopping and without apparently being compromised in their performance.

This was a true test, because Andrew had provided all the drills with wheat to sow, so there was no hiding a poor performance!

Our thanks to John Dale Drills (All Till Drill), Väderstad (Seed Hawk), Simba (Horsch Sprinter), S.G. Prescott & Sons (Cross Slot) and SimTech (Aitchison) for their bravery and to farmers Peter Southwell (John Deere 750A), Charles Lamb (Bertini) and Andrew (Amazone Primera) who brought along their own drills.

The results of Andrew's newly established TwinTrac CTF system was impressive, with soil conditions already favourable to drilling, despite the wet. Digging in the CTF beds to 30 cm depth was easy compared with a min till randomly trafficked area nearby, where a fork would only penetrate to around 10 cm before hitting a compact layer (see picture left).

Returning to the warmth of a specially clad workshop we learned more about Andrew's CTF system and also about CULTAN – **c**ontrolled **u**ptake **l**ong **t**erm **a**mmonium **n**utrition – a one pass system described by Christoph Bommes (CTF Europe/ppm Agrarberatung) for injecting ammonium fertilizer that improves both the health and yield of crops.

One of Andrew Manfield's TwinTrac CTF beds that provided easy digging compared with a section of trafficked soil in the same field

What is CTF?

CTF is described as a simple way of dramatically reducing input costs (time, fuel & machinery) - and at the same time increasing crop yields - both of which are done sustainably and both of which increase farm profit.

Sounds too good to be true? It's not claim the organisers; some farmers in Australia have cut their machinery costs by as much as 75% while their crop yields have risen. Similarly in the UK, the Colworth project is showing that lowered inputs combined with CTF is resulting in healthier looking crops and soils.

CTF is a whole farm approach to the separation of crops and wheels; it is a system that avoids the extensive soil damage and costs imposed by normal methods. Controlled traffic is not rocket science – it simply involves confining all field vehicles to the least possible area of permanent traffic lanes.

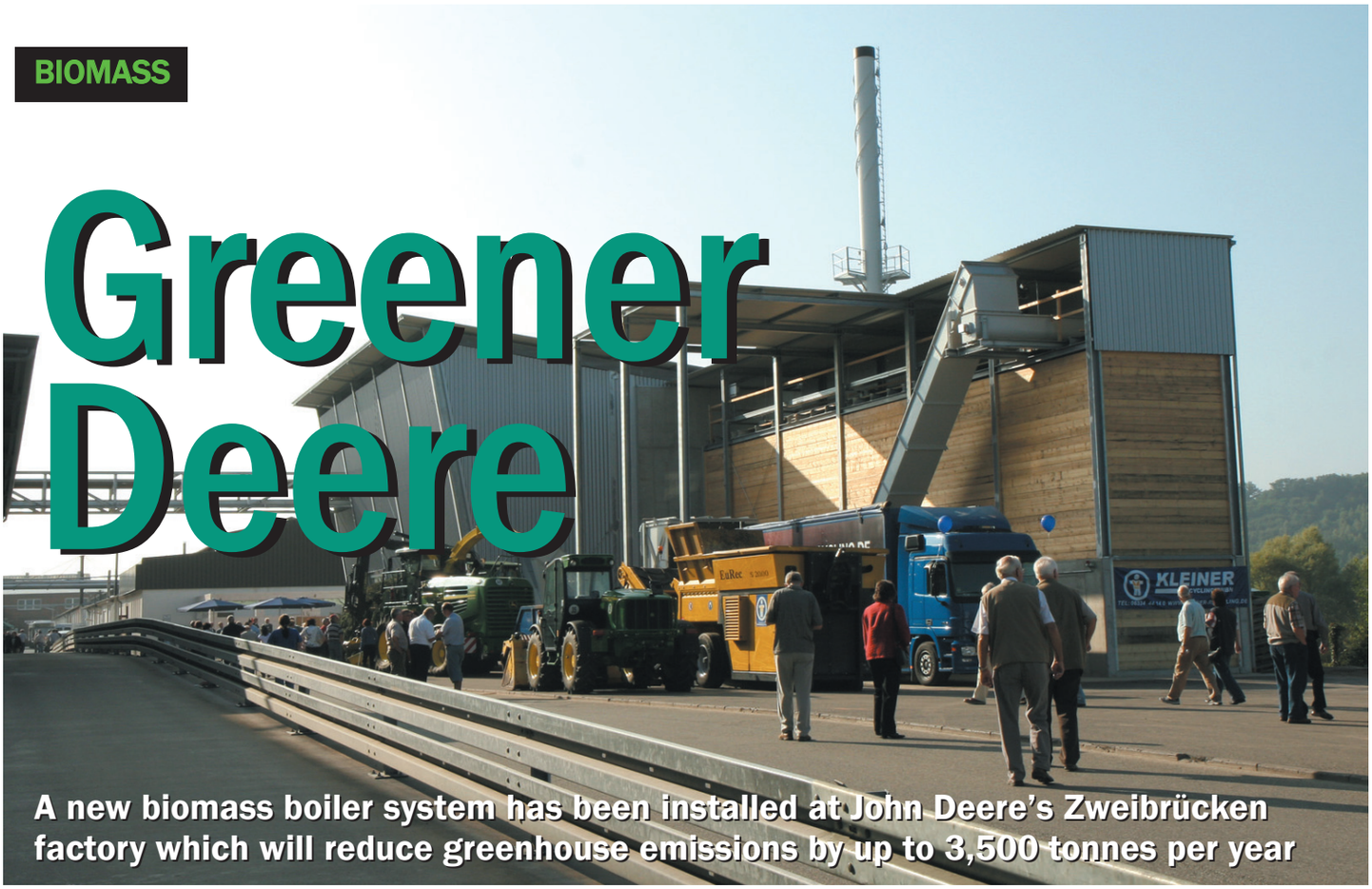
Appropriate agronomy and management is used to maximise the potential of both the cropped and wheeled areas for their specific purposes.

In practise it means the repeated use of the same wheel tracks for every operation, and although it is ideal for all machines to have the same wheel track (the distance between the left and right wheel centres) and for all implements to have a particular span (base module) or whole number mulitiple of it, this is not essential.

Percentage area wheeled can be reduced to 30 - 40% even with two different track and implement widths. The illustration below shows an optimised CTF set up with planter, harvester and chemical applicator.

BIOMASS

Greener Deere



A new biomass boiler system has been installed at John Deere's Zweibrücken factory which will reduce greenhouse emissions by up to 3,500 tonnes per year

JOHN Deere has invested 3.7 million euros in a new biomass boiler system at its Zweibrücken factory in Germany, which manufactures combine harvesters and self-propelled foragers for world-wide markets.

This is the first system of its kind to be installed at a European John Deere manufacturing plant, and is designed to reduce the unit's greenhouse gas emissions by up to 3,500 tonnes a year.

Replacing the factory's 40 year old heating system, the new installation includes 6.3 and 1.75 megawatt solid material boilers to accommodate varying energy needs throughout the year, two silos with capacities of 1050 and 510 cubic meters plus new pipework and heaters.

It will provide sufficient energy to heat the facilities and air condition the offices, as well as produce heat for various manufacturing processes, including the factory's e-coat painting system.

The boilers will consume about 4000 tonnes of wood chips a year from various sources, including fast-growing trees and forest residues, packaging waste and pallets received with incoming parts and materials, as well as rapeseed cake (a by-product of local rapeseed oil production).

"This new biomass boiler system will help to significantly reduce our carbon footprint," said Richard Ruf, general manager of John Deere Werke Zweibrücken at the official opening ceremony. "It alone will contribute about 80 per cent of our targeted reduction in greenhouse gas emissions by 2014."

The special open day ceremony attracted 7500 visitors and included a tree-chopping demonstration by a John Deere Forestry forwarder and a self-propelled forage harvester, which was equipped with a special intake to feed the forager's cutterhead drum (pictured).

An accompanying renewable energy exhibition featured 40 companies offering biomass, solar and wind energy products, including advanced heating technologies for consumers and farmers.

7,500 visitors attended a special open day ceremony for the biomass boiler

A John Deere forwarder and a self-propelled forage harvester were used for a tree-chopping demonstration

FIAT GROUP

CNH - Fiat Group is a leading company in the design, production and sale of agricultural and construction equipment.

CNH

Area Manager - Parts Sales & Services

(South East England, providing full PSM leadership & operational support to agricultural equipment dealers)

Salary: Competitive, plus sales bonus; healthcare & pension

The purpose of the role is to work very closely with our dealers, visiting them and ensuring they understand all aspects of their parts sales task, providing training if necessary. In addition, you would formulate sales growth programmes; focus on incremental business opportunities; identify key dealers to maximise sales; implement recovery actions and keep track of their performances. All issues and information emanating from them would be your responsibility to track in-house.

Candidates should have at least 2 years experience in After Sales, and have no problem in attaining a through knowledge of market competitors; product manufacturers and parts suppliers. We would expect a high level of computer literacy; an ability to be both a self starter and a team player, and be results orientated. With strong interpersonal skills, you would have no problem in communicating regular updates to management.

If you have a clean driving license, have excellent communication skills, and would like to apply for this vacancy, please visit - **www.fiat-careers.com/en** - job reference **CNH-707**

MEMBERSHIP MATTERS

Issue 64 Number 4 Winter 2008

BRANCH REPORTS

SOUTHERN MEMBERS LATE SUMMER VISIT

AN enthusiastic group of members from the south made a late summer morning visit to Laverstoke Park Farm, Overton Hampshire.

The business is run by former Formula 1 driver Jody Scheckter and his wife Claire. They took the farm in 1996 with the aim of farming organically to produce healthy, good-tasting food. Initially this was to be for themselves and family, but they soon realised they could make the same food available to the public.

In 2002, the neighbouring farms were added and Laverstoke Park is now 2500 acres and the food is available through the farm shop and box scheme. They have a market garden of 150 acres at Lymington.

We saw a substantial composting operation taking place using green material which is brought in from local authorities in Berkshire and the compost is used on the farm. Interestingly a 25 acre vineyard has been planted. Advice was obtained from experts in California and Germany. The vines have been planted with precision using satellite technology. Wine production is due to start in 2012

250 Water Buffalo are kept for beef and milk production. They are originally descended from Asian Buffalo. The animals were actually imported from Romania in Eastern Europe. Their milk is very rich and creamy. It is used to make cheese, cream and mozzarella. They are milked in a tandem parlour, surprisingly the animals do not have the ability to kick.

The farm has Saddleback, Middle White and Kune Kune pigs. The wild boar herd is based on animals of Polish descent. The boars are being crossed with some of our traditional pig breeds to produce special quality, slow growing meat. The boars have their own wooded area where they live naturally.

Three breeds of sheep are kept - Lleyns, Hebrideans and Polled Dorset. The poultry enterprise is in the early stages and is based on traditional breeds for meat and eggs.

They are trying a wide selection of different chicken, ducks - all year, geese and turkey - seasonally, as well as game such as wild pigeon and pheasant from time to time.

Laverstoke Park has its own abattoir and we watched from the viewing gallery as beef animals were slaughtered and prepared. The design is such that the animals were calm and quiet and had no idea of what was about to take place.

The Butcher's Shop is open to the public and the catering trade. Only meat produced on the farm is sold, including beef, water buffalo, pork, wild boar, lamb, poultry and local game.

The afternoon visit was to Milestones at Basingstoke, A Hampshire County Council museum in a massive modern building housing exhibits from Victorian buildings, streets, railway stations to every day household equipment in common use in the 1930s and 40s.

Members were engrossed in the old equipment particularly steam engines and saw milling equipment manufactured locally by Thorneycroft and Taskers. Using hand held communicators we had a detailed guided tour of the exhibits which took all of two hours.

Denis Welstead

New Energy Manager at Cranfield

IAgrE Member and Chartered Engineer Gareth Ellis, previously working as an energy consultant with Enviros has moved to a new job at Cranfield University.

His role is that of Energy Manager for the Cranfield University Estate.

This is a new post and Gareth will be working towards the University's goal of reducing its carbon footprint by 50% over the next 5 years.

No mean task Gareth. We wish you well.

COPY DATES:

LANDWARDS SPRING 2009 copy required by 20 FEBRUARY 2009

LANDWARDS SUMMER 2009 copy required by 22 MAY 2009

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Questionnaire points to future direction

Members welcome new look Landwards

Thank you to all those members who returned the questionnaire inserted in the Autumn 2008 edition of *Landwards* which asked for feedback on the new look and design of the IAgrE journal.

Respondents were firstly asked to rate the journal in a number of areas, and the resulting marks in the **Excellent** or **Very Good** categories were:

• How do you rate the new design	98%
• How do you rate the content of the first three issues	94%
• Is the content relevant to your interests	91%
• Is the balance of content about right	94%
• In general, how do you rate Landwards	95%

Does Landwards need to be more or less academic in its content?

• More	15%
• Less	25%
• No Change	60%

Would you like to see more advertising in Landwards?

• Yes	8%
• No	42%
• No View	50%

Would a classified section of relevant services be useful?

Yes	70%
No	10%
No view	20%

Amongst the suggestions for future topics and contents were water supply and irrigation; 'something technical for the younger workshop apprentice or technician'; technology - science and engineering relating to farming world-wide; 'inspirational/revolutionary articles'; more on manufacturing; 'more on people, personalities and appointments'; 'continue to cover eco-energy development';'energy studies; animal machine interface and manufacturing techniques.'

There were some comments that Landwards had become 'too parochial'; or that it had 'lost focus', but these were balanced by others which said 'very happy with present content'; 'keep up the good work'; and 'the editorial team are to be congratulated in making the magazine more readable and not just full of academic papers.'

EDITOR'S COMMENT

THANK you so much to all those who took the time to respond to our request for feedback on the new-look Landwards. In the first place I must say how much I have enjoyed putting together the magazine in the past 12 months, it has been stimulating, educational and above all a real challenge to get the balance right for a very diverse readership.

Your suggestions for future editorial topics have been taken on board - and I would really urge all IAgrE members to keep the copy coming!. Whatever your interest, whatever your speciality, this is YOUR forum, your chance to pass on information and updates to other like-minded professionals.

May I wish all readers a happy and peaceful Christmas and New Year and thank you all for your support and guidance.

CHRIS BIDDLE

Membership changes

Admissions

A warm welcome to the following new members:

Member

James B I (Leicestershire)
Spooner R R (Norfolk)
Robinson R P (Wiltshire)

Associate Member

Belson O T (Cambs)

Associate

Cochrane I B (Powys)
Khudonazarova A (Cardiff)
Pullen G (Wiltshire)
Rosado F M P N (Portugal)
Mochel T (France)

Student

Reaseheath College

Anderson A
Anderson D
Armstrong S E
Bailey A
Beale D M
Bebbington S
Biss A
Bowd D
Bownes L J
Bracey C
Broster J
Brown A
Brown A
Brown S D
Bruce S
Burchmore S
Burns J D
Carter M F
Christian P A
Cliffe S
Clough A
Cooper A D
Cooper G
Davenport N
Davies S
Dickinson D
Drinkel T
Dunnett K E
Dutton D
Field J
Foot J D
Fox J F A
Fraser G A
Goldie F
Goodier G
Griffiths A A
Hammond-Doorbar J
Henry P R
Heywood S
Hollick D R
Ingledew D J
Griffiths R
Jenner D
Jewell C
Johnson R
Jones G
Jones S J
Kemsley M
Kennedy C
Lamont P
Lawton S
Leigh M
Leonard L
Lister O
Mason P
McKendrick R J
McSkimming A J
Mearns S G
Morrice K
Peach D J
Potts C
Preston T L
Redman W
Richardson D M
Ritchie A
Roberts C
Robson M
Ruddock W
Scopes J N
Shore C J
Smith S
Stonier D
Summerfield E A
Sweeney C
Thake L
Thomas S
Thompson A J
Thorp L
Tucker B
Vasey D
Wakefield C
Warburton N C
Warburton R
Webber C
Webster E R J
Webster P C
Wells T M
Whalley M
White S J
Whitfield G
Whitfield M
Wilson J R
Woodcock K
Woodfine D
Wright G

University of Limerick

Hanly K

Harper Adams University College

Aldis S
Allen J
Balmer D G
Barkley M O
Bevan S
Bilbrough A J
Boocock P
Bowler J
Bradbeer J W
Bradley D M
Brisbourne K S
Campling D M
Carmichael L
Connolly D
Costello M A
Deering B M
Downes W J
Fehin P
Franklin K F P
Gale J
Gault P W A
Goodfellow G
Griffiths D R
Harper J
Haslam J W
Hayward A J
Hotcukiss E A
Howatson J J
Humphreys D A
Ives M R
Izzard J A
Jackson P
Kemp B
King R D
Larose G
Leonelli L
McCracken W
Manning M P
Mansfield B A
Matthews M
Mycock R
Oliver J
Peacock M
Phillips T C J
Radford A J
Reeves A
Rushton T
Self O
Sinokrot M
Smith T
Smith T L
Spicer R
Thomas J W
Turner S
Wainwright T R
Ward L P D
White C J
Williams M
Wilson W J

Transfers

Member

Thompson R J (Stafford)
Crook R E (Essex)

Associate Member

Hughes G T (Wales)
Bartlett M D (Bedford)
Parker M R (Derbyshire

Engineering Council

Congratulations to the following members who have qualified as Chartered Engineer and Incorporated Engineer entitling them to use the designatory letters CEng and IEng after their names respectively.

Registrations

CEng
Shariff A R B M (Malaysia)

IEng
Jaworski C (Devon)

Deaths

Diggens C D (Essex)
Smith P H S (Oxfordshire)

Commercial members

Agricultural Engineers Association (AEA)
Samuelson House,
62 Fodder Way, Hampton
Peterborough, PE7 8JB

British Agricultural & Garden Machinery Association (BAGMA)
Entrance B, Level B
Salamander Quay West,
Park Lane, Harefield
Middlesex, UB9 6NZ

Alvan Blanch Development Co Ltd
Chelworth
Malmesbury
Wiltshire SN16 9SG

Autoguide Equipment Ltd
Stockley Road
Heddington
Calne, Wiltshire SN11 0PS

Bomford Turner Limited
Salford Priors
Evesham
Worcestershire WR11 5SW

David Ritchie (Implements) Ltd
Carseview Road
Suttieside
Forfar, Angus, DD8 3EE

Douglas Bomford Trust
Barton Road
Silsoe, Bedford
MK45 4FH

FEC Services
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John Deere Ltd
Harby Road
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Nottinghamshire NG13 9HT

Law-Denis Engineering Ltd
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Shelbourne Reynolds
Shepherds Grove Ind. Est.
Stanton
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Suffolk
IP31 2AR

SSAB Swedish Steel Ltd
De Salis Court
De Salis Drive
Hampton Lovett
Droitwich
Worcestershire
WR9 0QE

White Horse Contractors Ltd
Lodge Hill
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Oxfordshire
OX14 2JD

Long service certificates

Name	Grade	Date of anniversay
50 years		
Frank **Bryant**	AIAgrE	14 Oct 2008
William Hugh **MacKenzie**	IEng, MIAgrE	14 Oct 2008
Robert **Wells**	IEng, MIAgrE	5 Dec 2008
35 years		
John Peter **Neat**	CEng, FIAgrE	4 Oct 2008
Stephen James **Hackett**	IEng, MIAgrE	4 Oct 2008
Robert Graham **Wilson**	IEng, MIAgrE	8 Nov 2008
Malcolm St John **Carr-West**	CEng, FIAgrE	8 Nov 2008
25 years		
Roger Ian **Murdoch**	AMIAgrE	30 Nov 2008
Martin Arthur **Ede**	CEng, FIAgrE	13 Dec 2008
John Edward Langley **Boyd**	IEng, MIAgrE	31 Dec 2008

Academic members

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Barony College
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Dumfries
DG1 3NE

Bicton College
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Budleigh Salterton
Devon
EX9 7BY

Coleg Sir Gar
Pibwrlwyd Campus
Pibwrlwyd
Carmarthen
SA31 2NH

Cranfield University
Cranfield
Bedfordshire
MK43 0AL

Greenmount Campus
CAFRE
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Harper Adams University College
Newport
Shropshire
TF10 8NB

Institute of Technology Tralee
Clash
Tralee
Co Kerry
Ireland

Myerscough College
Myerscough Hall
Bilsborrow
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Lancashire PR7 0RY

Oatridge Agricultural College
Ecclesmachan
Broxburn
West Lothian
EH52 6NH

Pallaskenry Agricultural College
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Ireland

Plumpton College
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Lewes
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BN7 3AE

Reaseheath College
Reaseheath
Nantwich
Cheshire
CW5 6DF

Royal Agricultural College
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Gloucester
GL7 6JS

Scottish Agricultural College
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Willowdene Training Ltd
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Bridgnorth
Shropshire
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SN15 2NY

NEWS ABOUT MEMBERS

50 years of personal agricultural history

Frank Bryant looks back at half a century

IN thanking IAgrE for the issue of the fifty year certificate, it recalls half a century of personal agricultural history.

When it was suggested to me that I might like to add a paragraph or two of memory, I thought 'what an open invitation!'. What to include - what to discard?

My association with agriculture was initiated by the Second World War, and hence recalls much of the effect that war had on agriculture and the desperate need for food.

Suddenly the potential of land was appreciated and lawns and long dormant pasture came under the plough. Wireworms and like pests were rampant.

There were compulsory orders of what to grow and where. Every inch of land was to be used.

A fearful thing, the Gyrotiller, appeared. A machine with massive rotative fangs that stirred the soil, not ploughed it. It had a top speed of about a mile an hour and a single cylinder of impressive dimensions. This machine could be ordered from a county Agricultural Committee to meet a farmer's tillage orders, tilling the untillable.

From that Committee could also be obtained the services of the first generation of combine harvesters, considered miracle machines in getting a product from weather lodged corn. With it came the need for crop drying and the necessary training in this new art.

It was necessary to be able to gauge accurately the footprint of sheaves coming in from a field to make a rick, to thatch it to ensure it was watertight until time for threshing.

Threshing was undertaken by steam driven threshing machines, usually at the turn of the year.

I was taught the art of ploughing with a pair of horses by a farmer who detested tractors on the grounds that the tractor wheels created a solid pan in the furrow.

After service in the RAF I graduated to a Fordson tractor started on coloured petrol, to indicate it was rationed, and then running on paraffin. The tractor pulled a two furrow plough. Only later came the Fordson Major, but just appearing on the horizon was the unique Ferguson with its close coupled implements.

Much farm work was still manual, such as thinning sugar beet, often done by gangs of prisoners of war and loading it up to send to the processing factory.

Then I changed direction and qualified as a Patent Attorney, though I kept very much in touch with the agricultural developments then taking place. People were still inventing the plough. It was the time of the chemist. New insecticides, selective weedkillers and growth hormones proliferated.

I did a lot of Intellectual Property work for Ransomes, Sims and Jefferies as they went through the development of the close coupling implements, their baby combine, crop drying, machining plough boards, as well as the continued development of mowing machines.

Two young farmers saw a future in forage harvesting and sought patent protection for the flail forager.

And of these fifty years? I have seen mechanisation touch the farm, one man doing the jobs of many, Prairie farming, Set Aside, farm shops.

The next fifty years are just forming up, and they promise to be just as interesting. Genetic engineering, the effects of global warming.

Could it be that land will become of vital importance once again? But that is just where I came in.

Frank Bryant, AIAgrE

EVENTS

IAgrE Branch Meetings and Events

South East Midlands Branch
Monday 12 Jan 09 starting 19.30
SALAD DAYS: THE CHALLENGES OF FARMING ACROSS EUROPE
Speaker: Neil Catton, Health & Safety Director, Shropshire Group/G's
Venue: Maulden Church Hall, Maulden, Beds
The talk will describe how G's keep salad crops on the supermarket shelves throughout the year by farming in different countries. This poses significant managerial and logistical challenges, which will be illustrated by considering the implications for the design, manufacture and operation of large scale harvesters and other machinery, which is transported between farms across Europe and operated using a multi-national labour force. For further details contact the Branch Secretary: John Stafford
Tel: 01525 402229 Email: john.stafford@silsoe-solutions.co.uk

West Midlands Branch
Tuesday 13 Jan 09 starting 19.15
AN EVENING OF MASSEY FERGUSON NOSTALGIA ...
Venue: Stoneleigh Village Hall
... using material from the Branch archives, presented by Bob Voss et al. A chance to look at slides and early film strips from the MF stable. Of general interest as well as to the Pioneering Technology Group and vintage enthusiasts. For further information and booking please contact the Branch Secretary: Michael Sheldon
Tel: 01926 498900 E-mail: michaelcsheldon@yahoo.com

Yorkshire Branch
Wednesday 14 Jan 09 starting 19.30
TORO GROUNDSCARE EQUIPMENT
Speaker: Jeff Anguige
Venue: Buckles Inn
tba For further information contact the Branch Secretary: Gordon Williamson
Tel: 01937 843891 Email: gordon.williamson@ntlworld.com

Wrekin Branch
Monday 19 Jan 09 starting 19.30
IT'S SHOCKING! THE LATEST DEVELOPMENTS IN BATTERY TECHNOLOGY.
Speaker: Roger Pemberton, Managing Director, Manbat
Venue: Lecture Theatre, Reaseheath College CW5 6DF
Due to the increasing electrical demand of modern tractors, harvesters, excavators and handlers; the battery, as the main electrical source has to deliver more - come and find out how. For further information please contact the branch secretary: Graham Higginson
Tel: 01270 613230 Email: wrekin@iagre.biz

Northern Ireland Branch
Wednesday 21 Jan 09
MACHINE DIAGNOSTICS IN ACTION
Venue: CAFRE, Greenmount Campus, Antrim
Discussion and Practical Demonstration of Modern Diagnostic Systems. Linked to launch of LTA by senior IAgrE representative from Council/Silsoe HQ. For further information contact Branch Secretary Ian Duff
Tel: 028 8673 6977 Email: duffi@iagre.biz

Wrekin Branch
Monday 02 Feb 09 starting 19.30
THE LATEST DEVELOPMENTS IN COMPACTORS, BACKHOE LOADERS AND DUMP TRUCKS
Speaker: David Maslin, Terex UK Ltd
Venue: Lecture Theatre,Harper Adams University College TF10 8NB
For further information please contact the branch secretary: Graham Higginson.
Tel: 01270 613230 Email: wrekin@iagre.biz

West Midlands Branch
Tuesday 03 Feb 09 starting 19.15
RENEWABLE SOURCES OF OIL - FACT OR FANTASY?
Speaker: Cliff Lea of Fuchs Oils
Venue: Friends Meeting House, Stratford-upon-Avon
Update your knowledge in this important field of engineering. With current world events, oil sourcing and technology is of paramount importance. For further information and booking please contact the Branch Secretary: Michael Sheldon.
Tel: 01926 498900 Email: michaelcsheldon@yahoo.com

South East Midlands Branch
Tuesday 10 Feb 09 starting 19.30
AGM / IAgrE PRESIDENT'S ADDRESS AND STUDENT MEETING
Venue: tba
For further details contact the Branch Secretary: John Stafford
Tel: 01525 402229
Email: john.stafford@silsoe-solutions.co.uk

Yorkshire Branch
Wednesday 11 Feb 09 starting 19.30
VINTAGE TRACTORS
Speaker: Maurice Craven
Venue: Buckles Inn
For further information contact the Branch Secretary: Gordon Williamson
Tel: 01937 843891 Email: gordon.williamson@ntlworld.com

Scottish Branch
February - tbc
MEMBERS NIGHT/SOCIAL EVENT
Speaker: tbc
Venue: tbc
tbc For further information contact Branch Secretary : Phil Amos
Tel: 07799 378652 Email: filamos@btinternet.com

Northern Ireland Branch
tba
HARNESSING ENERGY FROM THE SEA
Speaker: Colm De Burca, Ocean Energy, ESBI
Venue: AFBI Hillsborough, Large Park, Hillsborough
For further information contact Branch Secretary Ian Duff
Tel: 028 8673 6977 Email: duffi@iagre.biz

Wrekin Branch
Monday 02 Mar 09 starting 18.30
BRANCH AGM AND MEETING: LEGO DIGGERS
Speaker: Richard Robinson, MD, Autoglide Equipment and President of IAgrE
Venue: Temperton Room, Harper Adams University College TF10 8NB
The highs and lows of engineering mini diggers for the digger challenge at Legoland Windsor, as featured in Landwards. For further information please contact the branch secretary: Graham Higginson.
Tel: 01270 613230 Email: wrekin@iagre.biz

West Midlands Branch
Tuesday 03 Mar 09 starting 19.15
BRANCH AGM FOLLOWED BY A PRESENTATION BY THE PRESIDENT'S REPRESENTATIVE.
For further information and booking please contact the Branch Secretary: Michael Sheldon
Tel: 01926 498900 Email: michaelcsheldon@yahoo.com

Western Branch
04 Mar 09
AGM AND TALK ON TRACTOR PULLING
Speaker: Dr Andy Miller, Valtra
Venue: Wiltshire College, Lackham Campus
tbc For further details contact Branch Secretary Tom Overbury
Tel: 01242 870458 Email: tom.overbury@rac.ac.uk

South East Midlands Branch
Monday 09 Mar 09 starting 19.30
AGRICULTURAL TRAILER BRAKING: RULES, REGULATIONS & REALITY
Speaker: Dr Andy Scarlett
Venue: Maulden Church Hall, Maulden, Beds
For further details contact the Branch Secretary: John Stafford
Tel: 01525 402229 Email: john.stafford@silsoe-solutions.co.uk

East Midlands Branch
Tuesday 10 Mar 09 starting 19.00
BRANCH AGM AND TALK: LOW CARBON ANIMAL PRODUCTION
Speaker: Nigel Penlington
Venue: University of Lincoln Riseholme Campus
Low Carbon Animal Production - what it means and how to get there? For further information please contact the Branch Secretary: Paul Skinner
For further details contact Michael Sheldon
Tel: 01205 353754 Email: paulskinner57@btinternet.com

Yorkshire Branch
Wednesday 11 Mar 09 starting 19.30
ECOTEC RESOURCES
Speaker: Chris Elvey
Venue: Buckles Inn
AGM and technical talk For further information contact the Branch Secretary: Gordon Williamson
Tel: 01937 843891 Email: gordon.williamson@ntlworld.com uk

Other Events:

04 Dec 08
IMechE
SKILLS FOR FINANCIAL SUCCESS (FINANCE FOR ENGINEERING MANAGERS)
Venue: Institution of Mechanical Engineers, 1 Birdcage Walk, London, SW1H 9JJ
Ambitious young engineers aiming to take on additional responsibilities often require an improved knowledge of business and commercial practice. This concentrated one-day course of instruction, on the fundamentals of financial management in an engineering environment will provide a source of information not otherwise readily available. This is co-sponsored by IAgrE and therefore IAgrE members are eligible for the reduced IMechE member rate. For further details contact: Amy Fitzgerald (IMechE).
Tel: 0207 973 1291 Email: a_fitgerald@imeche.org
Web: events.imeche.org/EventListMain.aspx

10 Dec 08 to 12 Dec 08
International Fertiliser Society
16TH ANNUAL CONFERENCE, 2008 - Nutrient Recycling: Conserving and Integrating Resources for Best Practice in Agriculture and the Environment
Venue: Robinson College, Cambridge, UK
This Conference will begin by looking at underlying principles of various forms of recycling and then onto detailed analysif of composting and anaerobic digestion as methods of preparing materials for re-use as nutrients and the potential for energy recovery. It will consider opportunities for recycling nutrients and the regulatory framework.
Tel: 01904 492700 Email: secretary@fertiliser-society.org
Web: www.fertiliser-society.org/Content/Events.asp

22 Jan 09
Aqua Enviro
RESOURCE RECOVERY - NOT WASTEWATER TREATMENT
Venue: The Geological Society, London
For further information please contact Rachel Williamson, Aqua Enviro
Tel: 01924 257891 Email: rachelwilliamson@aquaenviro.co.uk
Web: www.aqua-enviro.net/calendar.asp

03 Feb 09 to 05 Feb 09
FTMTA
NATIONAL FARM MACHINERY SHOW
Venue: Punchestown Exhibition Centre, Naas, Co. Kildare
This event is held every two years, organised by Ireland's Farm Tractor & Machinery Trade Association
Web: www.ftmta.ie/farm.asp

19 Feb 09
Aqua Enviro
INCREASING PUBLIC CONFIDENCE IN THE RECYCLING OF ORGANIC RESOURCES (SORP CONFERENCE)
Venue: The Geological Society, London
For further information please contact Rachel Williamson, Aqua Enviro
Tel: 01924 257891 Email: rachelwilliamson@aquaenviro.co.uk
Web: www.aqua-enviro.net/calendar.asp

Full details of forthcoming events can be found on www.iagre.org/eventselect

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