Landwards

Agriculture • Horticulture • Forestry • Environment • Amenity

PETER LEECH IS NEW IAGRE PRESIDENT

John Deere Training Manager takes over from Richard Robinson

PROFILE: DR DAVID LLEWELLYN

Engineering drives everything says Harper Adams Principal

2010 CONFERENCE AND AWARDS

Report of the Cranfield conference and Awards to ten IAgrE members

IAgrE Professional Journal www.iagre.org Volume 65, Number 2 Summer 2010

Biosystems Engineering

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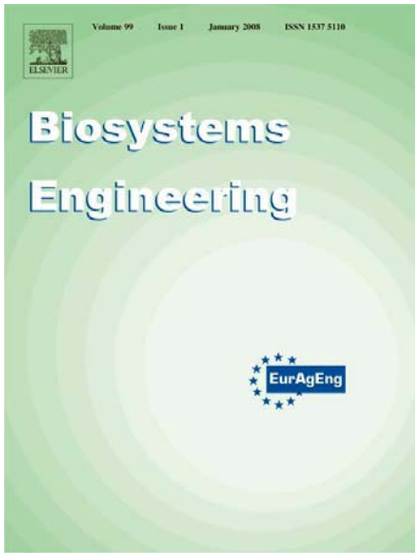

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The Managing Editor of ***Biosystems Engineering***, ***Dr Steve Parkin***, has kindly summarised some of the papers published in the last three issues which he thinks may be of interest to IAgrE members

Biosystems Engineering
Volume 105, Issue 2, February 2010, Pages 189-197

Assessing the safety provided by SAE J2194 Standard and Code 4 Standard code for testing ROPS, using finite element analysis

J.R. Alfaro, I. Arana, S. Arazuri and C. Jarén
Universidad Pública de Navarra, Campus Arrosadía, 31006 Navarra, Spain

Society of Automotive Engineers (SAE) J2194 Standard and Code 4 tests are defined by parameters depending on a reference mass, usually the unladen mass of the tractor. As overturn energy is proportional to mass, and the maximum permissible mass of tractors has greatly increased in recent years, is now possible that these standards do not provide enough safety for highly laden vehicles. A finite element (FE) analysis program was used to develop a procedure to calculate the maximum reference mass in the equations that define the energies to be absorbed by roll-over protective structure (ROPS), during loading tests, and the forces to be exerted during crushing tests. Thus, the validity of the Code 4 and SAE J2194 Standard were examined. A test procedure was carried out using four tractor models. The cause of the test failure was, in all four cases, the collapse of the ROPS before it infringed the clearance zone. It was shown that the current codes provide sufficient safety margins for only three of the four tractor models tested. The tests demonstrated that FE methods can be used to design safer ROPS..

Volume 105, Issue 3, March 2010, Pages 395-401

Validation and fine-tuning of a predictive model for air quality in livestock buildings

T.M. Banhazi, D.L. Rutley and W.S. Pitchford
Livestock System Alliance, University of Adelaide, SA3 571, Australia

A comprehensive survey of airborne pollutant concentrations within, and emissions from, 160 Australian piggery buildings was undertaken. The primary aim of the study was to model the concentrations and emissions of different airborne pollutants and thus identify potential reduction techniques. The main factors identified as significantly influencing airborne pollutant concentrations were building type, pen hygiene, pig flow management, seasons, building volume, ventilation airflow rate, air temperature, relative humidity, and farm size (as expressed by number of sows on site). These effects were included in comprehensive statistical models to explain the variation in measured concentrations and emission rates. The models developed were validated and fine-tuned using the "leave-one-out" cross-validation technique. This article details the validation technique used that was aimed to maximise the value of available experimental data and further improves the practicality of the models developed. The main result of the study was the development of an improved model. The study results, and the resulting prediction models, should help improve air quality in piggery buildings by providing decision makers with an awareness of the environmental conditions inside and outside of piggery buildings. In turn, that should lead to improvements in the health and welfare of pigs and piggery staff and the sustainability of the piggery operations.

Volume 105, Issue 4, April 2010, Pages 455-465

Evaluating ammonia emission potential from concrete slat designs for pig housing

L. Hamelin, S. Godbout, R. Thériault and S.P. Lemay
University of Southern Denmark, 5230 Odense M., Denmark
Research and Development Institute for the Agri-Environment (IRDA), Quebec, Canada
Department of Soils and Agri-Food Engineering, Laval University, Quebec, Canada

In growing-finishing pig houses, ammonia (NH3) is mainly produced by excreta on the concrete slatted floor surface and in the slurry pit. The objective was to reduce the amount of NH3 emissions produced on the fouled floor surfaces of growing-finishing pig houses by finding a slat design that minimises the contact between excreta and concrete. Concrete slat prototypes were tested with regards to their NH3 emission potential under fouling simulations. Three factors were studied; the slats cross-section shape, the presence or absence of a notch along the slats, and the presence or absence of an epoxy coating applied to the slats. Slats were uniformly fouled with a urea-urease solution. Immediately after fouling, the slats were inserted in an environmental emission chamber and NH3 concentrations were measured at 2, 24, 48, 72 and 96 h after the fouling event. Emission rates were calculated for each of these five sampling events. Statistical analysis showed that only the presence of a notch had a significant effect on the reduction of NH3 emission rates. Compared with the control design that is typically used in pig houses, the presence of a notch resulted in average reductions between 23 and 42%.

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Landwards
Agriculture • Horticulture • Forestry • Environment • Amenity

VOLUME 65 Number 2 2010

THIS ISSUE

EDITORIAL

Engaging the 18-year-olds

DURING the recent election we heard politician after politician talking about 'connecting' with the voters. Why they couldn't simply say 'talking with' beats me, but I suppose spin needs buzz-words to sound plausible.

It sounds as if there is going to be an awful lot of 'connecting' in the air over the coming months and years - perhaps because things have become 'unconnected'.

That's certainly the interpretation I put on the industry deciding to 'connect' with the colleges at a special day at Cranfield University on 15 July.

For AEA, IAgrE et al to put on this day does suggest that they feel that industry and academia are not necessarily singing from that same fabled hymn-sheet. Operating perhaps in isolation from one another when their aims and goals should be absolutely inter-twined.

Perhaps though there is a much wider issue to address, and that is the detachment that many young people feel from the word 'engineering'.

The reasons are varied and far-reaching. According to J D Turner, pro vice-chancellor, University of Portsmouth writing in the Times Higher Education supplement recently. "In my school the head of physics was an ex-RAF pilot, the head of chemistry had been at ICI and my maths teacher was employed at Harwell. All of them could illustrate theory with a wealth of real-life experiences".

"By contrast, many teachers are entering the profession as new graduates with limited experience outside the classroom."

Turner says that another reason that engineering has fallen off the radar for many youngsters is that there are far fewer inspiring technology initiatives these days.

"I remember the excitement caused by Concorde, or the Apollo space programme," he says. "Today, the UK has lost much of it's manufacturing base."

He suggests that, "we make the curriculum much more interesting and relevant - and decide what subjects really do engage 18-year-olds in the 21st century."

That challenge is immense and should engage all in the industry and education, for the story is crystal clear.

It is only engineering that can solve the challenges of feeding the world, ensure that resources are protected and the environment made safe for future generations.

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IAgrE is a founder member of ***EurAgEng,*** *a licensed body of the* ***Engineering Council*** *and a founder constituent of the* ***Society for the Environment***

Lantra develop greenSKILL

RECENT research published on the green space sector has revealed the full extent of skills shortages and the need for new ways of improving skills.

Lantra Sector Skills Council say help is at hand with an innovative online solution they have developed to tackle these gaps to 'ensure a sustainable and flourishing sector'.

Key findings of the research, contracted by CABE and English Heritage identified that although 44% of the sectors workforce is qualified to degree level or above, there is a shortage of skills in particular careers from park managers to tree surgeons. To reduce skills gaps such as this, Lantra has developed in partnership with Greenspace, a skill assessment tool specifically for the sector.

Tony Bird, Lantra's Head of UK Business Development said, "greenSKILL records and monitors skills, qualifications and continuing professional development – a clear must in a sector where skills are often developed in the workplace rather than in the classroom. It works by providing a framework to record practical achievements, identify skills gaps and assist in workforce planning."

The system devised by industry for industry, is based on National Occupational Standards and Sector Approved Job Profiles, which describe the skills, knowledge and understanding required to do a particular job. This allows the employer and employee to develop and record skills against specific environmental and land-based jobs.

Leicester City Council is the first local authority to offer their 227 staff members working within the cities parks and green spaces, the opportunity to develop and assess their skills against national standards through greenSKILL.

Lantra say the use of greenSKILL within Leicester City Council will ultimately ensure they have the right people, with the right skills for their job, thereby improving efficiency, saving costs and reducing skills gaps.

Visit www.lantra.co.uk.

Engineering Council and Society for the Environment both ratify five year extension

IAgrE licence extended

FOLLOWING joint audits of IAgrE carried out on the 16th March 2010 by the Engineering Council and the Society for the Environment, the Institution is pleased to announce that both organisations have agreed to re-license IAgrE for a further five years.

The Engineering Council ratified this decision on the 22nd April at their QAC meeting and it was anticipated that the SocEnv RA would have done likewise at the meeting on the 8th of June of their Registration Authority.

This is good and important news for IAgrE, says CEO Christopher Whetnall.

"Through the licences held from these organisations, IAgrE is able to offer (to suitably qualified and/or experienced members) the professional qualifications that are so important in today's economic climate."

"Having access to these qualifications (Engineering Technician, Incorporated Engineer, Chartered Engineer and Chartered Environmentalist) means that IAgrE members can demonstrate that they have the wealth (and depth and breadth) of experience to succeed in these difficult times.

"There are members of IAgrE who have not made use of these professional qualifications and yet many of you who have not are eminently qualified to do so. It is simply a matter of dropping the Membership Department a line to put the process in motion".

Christopher Whetnall added, "I would like to put on record our thanks to Wendy Hickman - IAgrE Membership Secretary, Dr Steve Parkin - Chairman of the IAgrE Membership Committee, and indeed all the members of the Membership Committee and Internal Audit Committee who carry out the important work that ensures the rigour and transparency that has facilitated our licence renewals."

New Chairman for FEG

David Sulman of UK Forest Products Association elected at AGM

MEMBERs of the Forestry Engineering Group, one of the Institution of Agricultural Engineers' specialist technical groups, held their AGM at BRE, Watford on 10 March.

Members were welcomed by Dr Peter Bonfield, Chief Executive of BRE, (Building Research Establishment) and Dr. Ed Suttie, Leader of BRE's Timber Research Group. In addition to presentations on sustainable design and procurement, the opportunity was taken to view the impressive wood science and timber technology facilities, including the wood library, which contains more than 30,000 samples of over 10,000 species of wood.

In addition, the workshops and laboratories were visited to see research underway in relation to timber drying, strength properties and glue-laminated timber. Members also visited the BRE Innovation Park, which demonstrates modern methods of construction, which showcase sustainability and innovation in the built environment. Low and zero carbon construction techniques and advanced energy efficiency solutions were demonstrated to good effect.

L-R: Chris Whetnall (IAgrE), David Sulman (FEG Chairman) and Jim Christie, pictured at the FEG AGM at BRE

At the FEG AGM, David Sulman, (UK Forest Products Association), was elected Chairman in succession to Jim Christie, with Steve Penny, (Forest Research), elected Vice-Chairman.

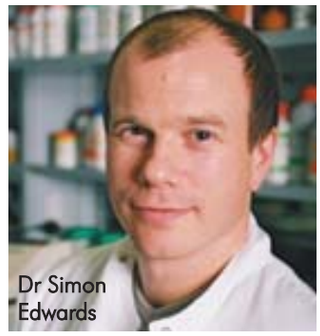
The FEG Autumn Symposium will be held on Wednesday 8 September 2010 at the University of Cumbria, Newton Rigg Campus, Penrith.

For more information about FEG, see *http://www.iagre.org/FEG/index.shtml*

Harper Adams appoints three Professors

Dr Peter Kettlewell, Dr Simon Edwards and Dr Liam Sinclair


Dr Peter Kettlewell


Dr Simon Edwards


Dr Liam Sinclair

HARPER Adams University College say they are delighted to have made three new professorial appointments.

The title of Professor has been granted to Dr Liam Sinclair (Professor of Animal Science), Dr Simon Edwards (Professor of Plant Pathology) and Dr Peter Kettlewell (Professor of Crop Physiology).

Harper Adams Principal Dr David Llewellyn, said, "The ongoing debate about food security has underlined the importance of research and higher level skills developments in higher education that will be supported by these new appointments.

"These professorships also demonstrate the University College's commitment to the agri-food sector as well as our wish to address the priorities established in the UK Cross Government Food Research and Innovation Strategy."

Professor Peter Kettlewell, 55, was instrumental in securing Harper Adams's first research studentship, back in 1981, when the institution still bore the title of Agricultural College. Raised in Bridlington, East Yorkshire, Professor Kettlewell read his first degree, in plant science, at Newcastle University. He then completed a research studentship at Cambridge before joining Harper Adams in 1980, as a lecturer.

Thirty years later, Professor Kettlewell continues to juggle teaching and his own research, specialising in how the environment and agronomy affects wheat performance, and was also recently appointed at Harper Adams's Research Co-ordinator.

Professor Simon Edwards, 44 is also East Yorkshire born and raised. He undertook his first degree at Manchester in applied biological sciences, at the city's Polytechnic.

Then it was off to the University of Aberdeen, to complete a PhD in plant pathology, before returning for his first post-doc position at York University. A second post-doc position brought Dr Edwards to Harper Adams in 1997 and led to his appointment as a Senior Research Fellow and, 7 years later, Reader within the University College's Crops Department.

Professor Liam Sinclair, 43, was born in Wick, Caithness, Scotland and went on to achieve a first class honours degree in Agriculture with Animal Science at Aberdeen University.

After completing his PhD in rumen biochemistry at Nottingham University, Dr Sinclair joined Harper Adams in 1992 as a lecturer. His research areas include ruminant nutrition; alternative forages for dairy cows; and mineral metabolism of dairy cows.

Single voice for Soil Science formed

THE British Society of Soil Science and the Institute of Professional Soil Scientists have united to form a single voice for Soil Science.

Kathryn Allton, Executive Officer of the British Society of Soil Science, said "The creation of a single soil science organisation will enable stronger, more effective representation and help support all aspects of soil science into the future."

The creation of a single organisation to represent soil science has been supported by members of both the original unincorporated bodies who voted unanimously in favour of the merger at separate Annual General Meetings in 2009.

The British Society of Soil Science will continue to be fully inclusive and engage with all. The Institute of Professional Soil Scientists will continue to support the needs of the professional membership, especially as the body licensed to award Chartered Scientist (CSci) status to members, and will retain its distinct identity as a trading name of the British Society of Soil Science.

The British Society of Soil Science is a charity created by the unification of the former unincorporated British Society of Soil Science and Institute of Professional Soil Scientists. It will build on the heritage and reputation of these two organisations to champion the study and development of Soil Science, and will provide expert guidance and opinion.

Engineering Council appoints new CEO

THE Engineering Council has announced the appointment of Jon Prichard as its new CEO.

Jon will be joining the regulatory body at the beginning of August to replace Andrew Ramsay, who is retiring after 13 successful years at the organisation including eight years as its CEO.

Jon is already well known to the Engineering Council, having served on the Board from 2003 - 2007 and is currently Chairman of Trustees for the organisation's pension scheme.


Jon Prichard

Chairman of the Engineering Council Board, Professor Kel Fidler said, "We are very pleased and excited by Jon's appointment as CEO. His background and experience align well with the needs of the Engineering Council as it meets the challenges faced by the engineering profession in the coming years."

Jon, a Chartered Engineer, joins the Engineering Council from High-Point Rendel, where as Director of Resources he is responsible for delivering the HR, IT, Quality Assurance and business support functions; a role he has held since 2007. Prior to that he was an executive director at the Institution of Civil Engineers where he was responsible for revitalising the delivery of the learned society function, having previously led and reorganised the membership, qualifications and HR teams.

Jon has also spent 19 years as an officer in the Corps of Royal Engineers, serving both in the UK and overseas.

Sustainable Use will require Professional Registration status

THE Sustainable Use Directive will oblige all advisers and agronomists to renew their qualifications regularly.

According to Rob Simpson managing director of BASIS, "That will probably mean every three years, so it is something that everyone needs to be aware of and start planning for now," he warns.

"There will be two options available to meet the requirement to renew. Re-sit the BASIS Certificate in Crop Protection exam, or demonstrate three years of Continuing Professional Development (CPD) through membership of the BASIS Professional Register."

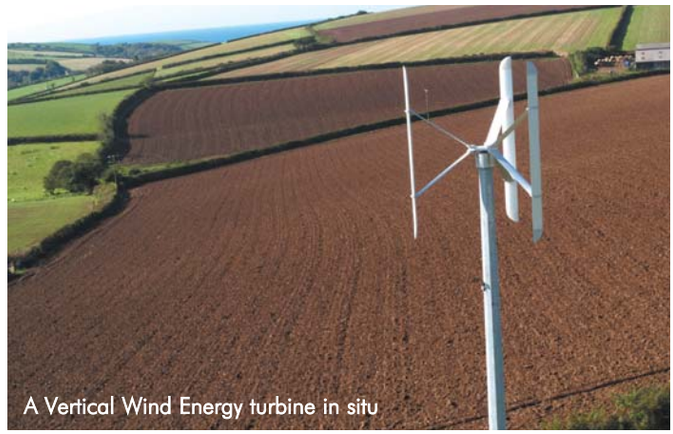
Mr Simpson continues, "We are particularly keen that those advisers who were granted an exemption from the now statutory requirement to pass the BASIS Certificate in Crop Protection exam should be made aware of the situation. They need to join the BASIS Professional Register before the end of 2010 or they will be faced with the prospect of sitting the exam."

Letters of exemption were issued by BASIS to experienced advisers before the Control of Pesticide Regulations came into effect. "Quite a number of these exemptions were granted. We know that there are 370 exemption holders currently on the BASIS Professional Register but what is not clear is how many other exemption holders are still practising agronomists and how many of these will wish to continue after 1 January 2014 when the Sustainable Use Directive must be implemented."

Tariffs seen as the stimulus the small wind industry requires

Harvesting free wind

ON April 1st, the day that the Feed-In Tariffs (FITs) commenced, Tony Gordon, Chief Executive, Vertical Wind Energy, warmly welcomed them and stated, "With the Government going to pay FITs up to 34.5 pence for 1kW of energy generated from wind from today, payable to anyone who installs a turbine or some other renewable energy system, regardless of whether they use all the electricity themselves, purchasers will instantly have a new income stream by installing a Vertical Wind Energy turbine and harvesting free wind.


A Vertical Wind Energy turbine in situ

"FITs are to be welcomed as they are exactly the sort of stimulus the small wind industry needs, if we are to ensure the UK economy is a centre of excellence for small wind systems and micro-generation as a whole.

"FITs and permitted developments (when introduced - hopefully in the summer) together will be a double shot in the arm for the micro wind industry in the UK and remove the current barriers to growth the industry faces and mean we can really move the UK economy to a low carbon economy with the jobs and skills that will bring.

"Savings will accrue from the FITs, from replacement of purchased electricity (typically around 13p/kWh) with own generation and from the sale of any surplus generation to the National Grid, possibly during the 18 weeks of the year when the school is closed. Customers pay off their initial investment within 5 to 10 years. After that all revenue from FITs and excess power sold back to the grid is profit.

"The Vertical Wind Energy turbines can generate electricity regardless of the direction of the wind unlike many conventional horizontal axis wind turbines."

Official opening of Bullock Building

THE Bullock Building, the newly acquired home of the Institution, shared with members of Natural Resources Department and River Restoration Centre, will be officially opened by Prof Doug Kell, Chief Executive of BBSRC, in July.

Many of our readers will know of the late Prof Peter Bullock, after whom the building is named. He was a distinguished and influential soil scientist with strong connections to Cranfield University. He was director of the Soil Survey of England and Wales at Rothamsted when it transferred to the then Cranfield Institute of Technology at Silsoe. His leadership was an important factor in ensuring the continued existence of a research institute focused on English and Welsh soil resources - the National Soil Resources Institute at Cranfield University is the direct descendant of the SSEW.

Amongst his many notable achievements was his contribution, as a member of the Intergovernmental Panel on Climate Change, which was awarded the Nobel Peace Prize for 2007.

Farmers challenged on their environmental performance

A NEW survey released by Farming Futures - an industry-led project which helps farmers respond to climate change - reveals that one in four farmers have noticed increased interest from customers in their environmental performance over the past year.

53% of those surveyed recognise that addressing climate change offers potential business opportunities – a significant rise on last year – and the number of farmers producing their own energy has doubled. Almost half are taking action to reduce greenhouse gas emissions from their land (48%), and one in three (31%) farmers are doing something to adapt to the impacts of climate change.

Encouragingly, almost half (47%) of farmers are confident that the industry's target to reduce greenhouse gas (GHG) emissions by 11% by 2020 can be met. And a massive 47% are improving energy efficiency on their farm.

Other key findings from the survey are:

- *Pig and poultry farmers came out top in reducing GHGs from their farms, with 63% and 58% respectively saying they were taking action.*
- *The East Midlands and Yorkshire & Humber came out top in terms of reducing GHGs from their farms, with 61% and 56% respectively saying they were taking action.*
- *Veg and potato growers and pig farmers came out top in adapting to the impacts of climate change, with 47% and 45% respectively saying they were taking action.*
- *The West Midlands and the East Midlands came out top in adapting to the impacts of climate change, with 45% and 39% saying they were taking action.*
- *74% think that producers should work more closely with processors and retailers to combat climate change.*

Madeleine Lewis, Farming Futures Strategic Advisor said, "The last year has brought a lot of developments in the agricultural sector and climate change is now firmly on the agenda. Government targets around greenhouse gas (GHG) emissions, renewable energy and food security are challenging us to rethink the way we farm. These issues aren't going to go away – by engaging with them and making changes, you can take advantage of the opportunities and manage the risks"

The new Farming Futures website and blog has been designed as a 'one-stop-shop' to help farmers discover and share what actions they can take on their farm that will reduce their environmental impact: *www.farmingfutures.org.uk*.

Online access to SaWMA archives

FOLLOWING a commitment made at the 2008 launch of the RASE (Royal Agricultural Society of England) report on the current status of soil and water management in England, the Institution of Agricultural Engineers has announced the release, online, of all available issues of the Soil and Water Management Association (SaWMA) journal.

Dating back to 1977 these journals contain valuable information on a variety of soil and soil related topics. The documents have been archived as scanned PDFs and are therefore searchable.

The complete set of available journals (in one 719 page searchable document), will be available from IAgrE on CD Rom. They can also be found on line at *www.iagre.org* and also the RASE *www.rase.org.uk* and Openfields *www.openfield.co.uk* websites.

Agricultural Engineering staff boosted at Harper Adams

THREE new agricultural engineering lecturers have joined the academic staff at Harper Adams.

Paula Misiewicz joins the Crops and Engineering department as a lecturer in soil and water management. Prior to her appointment Paula, who is finishing a PhD in Soil - Tyre Interactions / Compaction at Cranfield, gained a MSC in Land Reclamation and Restoration at Cranfield/Silsoe and a MSc and BSc in Environmental Engineering in Poland.

"It's a big challenge and my first experience of teaching," said Paula. "The position is perfect as it also includes a certain amount of research work and Harper Adams is a great environment to work in, with the mentoring programme really helping you find your feet quickly", she added.

Another graduate from Cranfield, who has joined the staff as a mechatronics lecturer, is **David Clare**. David graduated from the Silsoe Campus in 1989 with 2:1 BEng (hons) in agricultural engineering. "David was chosen for the position because of his knowledge of applied mechatronics in the off road industry," said Richard Green, senior lecturer in the Engineering Department.

"The appointment has been made to support the existing Mechatronics lecturer because of the increasing quantity of Mechantronics and Electronics within the Agricultural Engineering and Off Road Vehicle Design course. It will also help to strengthen the suspension and traction expertise within the department," said Richard

To increase the Engineering Department's expertise in CFD and Food Engineering **Tomas Norton** has been appointed as a Biosystems lecturer. Tomas' first degree was in Ag Science majoring in Biosystems Engineerng at University College Dublin. He then studied for a PhD in Biosystems Engineering at University College Dublin.

"Tomas's expertise is in Computational Fluid Dynamics (CFD) where he has extensive experience of modelling hot air and fluid flow in both farm buildings and food processing machinery. His role will require him to support the Agricultural Engineering and Off Road Vehicle Design courses as well as to develop Food Engineering Teaching and Research," concluded Richard.

Pictured l to r: Paula Misiewicz, Tomas Norton and David Clare with Harper Adams Principal Dr David Llewellyn

Part of the industry wide '*Look Behind You*' campaign

Deere dealers complete brake test training

JOHN Deere has recently completed an extensive programme of dealer training in the UK and Ireland, as part of the current industry wide '*Look Behind You*' campaign to promote safe tractor and trailer braking.

Over 160 dealer technicians and service managers have undergone in-depth training on the use of industry approved Brake-safe™ test kits, designed to check that the braking systems on trailers and the towing tractor are working safely and efficiently. The majority of the company's agricultural dealers have now invested in the kits, covering over 80 dealer locations in total across the UK and Ireland.

"This initiative is part of the continuing investment by John Deere and our dealer network, to ensure that customers' machines comply with legislation and to help contribute to higher levels of road safety,"says John Deere's division service manager Stuart Minter.

"Over many years there has been a growing trend towards the use of larger, heavier trailers and higher horsepower, faster tractors to pull them. The industry is now taking a common approach to solve the problems caused by these issues, and promote the safe braking of tractor and trailer combinations on the road."

The '*Look Behind You*' campaign was initiated in 2009 by all the main tractor manufacturers, the Department for Transport (DfT) and the HSE, in association with the AEA and with the support of trailer manufacturers. All tractor manufacturers test to the same agreed standard, utilising the same procedures and equipment, and while some have outsourced their brake test training to BAGMA, others including John Deere have chosen to deliver the training through their own in-house resources.

Over 120 John Deere agricultural dealer service managers from the UK & Ireland were represented at the company's annual service managers meeting held at Langar where the initial launch of the brake test solution and in-depth training were included in the programme

Using the new test kit, overall tractor, trailer or combination brake efficiency can be quantifiably measured, and dealers will be able to demonstrate to customers where potential deficiencies in brake systems may exist. The service will therefore allow farmers and contractors for the first time to satisfy themselves either of their combination's safe braking capabilities, or the need to maintain or upgrade their braking system as required.

Saving invaluable soil surveys

CEO VIEW

THE day after we moved into our new office suite at Cranfield, I arrived in the foyer of the building only to be confronted by a pallet of map albums and consultants reports.

On closer inspection, I began to recognise not only the company names on the front covers (Sir M MacDonald and Partners, Groundwater Development Consultants, Hunting Technical services to name but a few), but some of the project titles - Lower Indus Project (Pakistan), Umm er Radhuma Study (Saudi Arabia and Bahrain), Western Savannah Project (Sudan) to name but three. What I had stumbled on was just a small part of the 'World Soil Survey Archive and Catalogue' (WOSSAC) collection.

I did mention this collection some years ago in *Landwards* but feel it is important enough to warrant another visit.

Large numbers of soil surveys made worldwide in the past 80 years in more than 250 territories, principally by British companies and soil survey staff, were deemed to be in danger of being lost, destroyed and becoming generally unavailable. This situation had arisen at a time when there was reviving interest in soils on global and regional agendas and an increasing realisation of the crucial role of soils in sustainable development and the functioning of the environment.

Through the good offices of Cranfield University and the hard work of British Society of Soil Science (BSSS) and the Tropical Agricultural Association (TAA) and the International Union of Soil Sciences (IUSS), among others, the 'World Soil Survey Archive and Catalogue' (WOSSAC) project has been created to develop an archive and catalogue of all substantial soil surveys, reports and maps made overseas, with particular reference to those by British companies and personnel, to provide a safe repository for endangered copies, and to make the accrued information widely available for consultation by interested parties.

The collection also includes substantial data on UK soil surveys.

This collection is an enormous resource and it is a credit to Cranfield University that they have made the commitment to house and support this archive.

What is now required is a concerted effort to raise some funds to ensure that this collection is digitised to make it more readily accessible by all who wish to use it.

For any one interested in finding out more about this worthy project, you can visit the WOSSAC website at http://www.wossac.com. Those of you wishing to contribute material or funds should follow the menu items Contributing or Supporting.

Christopher Whetnall

‘No vacancies’ sign goes up at JCB Academy

Waiting list created ahead of September opening

THE JCB Academy has opened a waiting list for places at the unique £22 million regional centre of learning after becoming fully subscribed months ahead of its September opening.

A total of 170 young people have enrolled for Year 10 and the Sixth Form places at The Academy which will help nurture the UK engineers and business leaders of the future.

The enthusiastic response of parents and students to the only learning establishment of its kind in the UK means applicants now going on a waiting list in case some of the allocated places are not taken up at the start of the inaugural term.

JCB Academy Principal Jim Wade said, “We are delighted that The Academy is fully subscribed and that it has proven to be so popular that there is now a waiting list for places. I am sure this kind of interest will continue in the future.”

The Academy, based in the renovated historic Grade II listed Tutbury Mill, close to JCB’s World Headquarters at Rocester, will welcome 120 Year 10 students (14-year-olds) who over two years will study for the new Diplomas in Engineering and Business as well as GCSEs in the core subjects of Maths, English, Sciences, a modern foreign language and ICT.

In addition 50 Year 12 Sixth Form students have been awarded places to study for Advanced Engineering and Advanced Business Diplomas. Eventually, the world-class learning facility which is the only education provider of its kind in the UK, will cater for a maximum of 540 young people.

JCB Academy Principal Jim Wade pictured at the site of the new learning centre which is now full for the September 2010 intake

Like other state schools, the JCB Academy is funded by the Department for Children, Schools and Families (DCSF), but as main sponsor JCB contributed 10 per cent of the capital and donated Tutbury Mill. Applications for entry into year 10 for 2011 open in September.

Farming teaching packs prove popular

More than 15,000 of the NFU booklets delivered to schools

THE NFU’s *Why Farming Matters* teaching packs have proved extremely popular with the country’s primary and secondary schools.

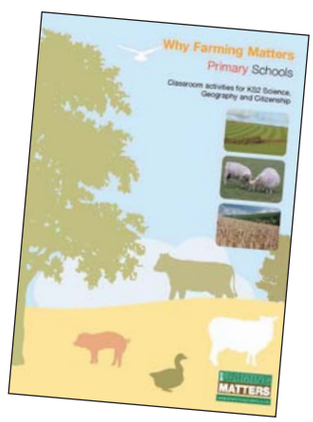
Working with Farming and Countryside Education (FACE), the NFU originally launched the packs in 2007, aimed at helping teachers deliver lessons on the importance of food and farming.

More than 15,000 have now been requested and delivered to schools across the country, with 3,500 of the secondary school packs snapped up in the past 12 months alone. All secondary school hard copies have now gone although electronic versions are still available to download from the FACE website. Teachers can still get their hands on the primary school packs.

The packs include booklets containing a series of activities for children at Key Stages Two and Three on a wide range of farming topics, as well as three sets of picture cards and a DVD containing interviews with farmers about their lives and work.

NFU senior campaigns officer Gemma Fitzpatrick said, “The packs have been hugely successful over the last two years and we continue to get requests from both primary and secondary schools nationwide. They are a fantastic resource for teachers, full of activities and ideas for learning about farming.

“It is vitally important that youngsters understand the role farming plays in their everyday lives so they have a better idea of where their food comes from.



These packs are easy to understand and help explain agriculture in a positive and balanced way.”

More information on the teaching packs can be found at *www.face-online.org.uk/why-farmingmatters.*

Held in brand new machinery workshop

Plumpton host MF roadshow

THE Massey Ferguson Grounds Care Roadshow, hosted by Yeowart Agricultural Ltd at Plumpton College, East Sussex, attracted many visitors, staff and students at the event on 17th March 2010.

L-R: David Yeowart, md, Yeowart Agriculture Ltd; Mike Gurney, Head of Engineering and Machinery, Plumpton College

The event was held in the college’s brand-new machinery and engineering workshops.

This event was only one of four, at various sites within the UK and involved the first public demonstration of MF 1500 Series compact tractors and implement ranges across the complete spectrum. The open day featured Groundscare, Estate, Equestrian, Sports and Amenity equipment.

Mike Gurney, Head of Engineering and Machinery, Plumpton College said, “David and Lewis Yeowart were generous hosts for the day and keen to help all visitors to the event, giving them valuable information and advice. This partnership is one area which is beneficial to us all and one which we hope will continue.

“We are excited by the new Engineering and Machinery facilities now on-site, they are attracting a wide range of students and this roadshow event helped to boost their working knowledge skills.”

Marion King, who was appointed as IAgrE Communications Officer last Autumn says that members can help raise the profile of the Institution

IAgrE news agenda is growing

THE investment made by IAgrE to raise its profile with the trade media in its various sectors is beginning to take effect.

Persuading magazine editors to take an interest in you and use your stories and material takes time.

But it is important. Magazine editorial is seen as an independent and objective evaluation of your organisation and is said to hold more credibility than other forms of marketing communication and editorial coverage is trusted more than an advertisement.

How successful we are in getting our stories and news into the press will also depend to some degree on the involvement and enthusiasm of the membership to help.

We have made a good start and momentum is gathering but I would appeal to members to help me increase our coverage.

Call or email me with story ideas because the profile of IAgrE cannot be raised without the help and support of its members.

Contact Marion with any news stories at *comms@iagre.org* or phone 01234 750876

Left: On a recent visit to the John Deere UK headquarters at Langar, Marion took the opportunity to drive one of the company's latest tractors

AEA Colleges Day

15th July Cranfield University

THE AEA Training and Education Committee are holding a Colleges Day at Cranfield University on Thursday 15th July 2010, jointly organised with IAgrE.

AEA Chief Executive Roger Lane-Nott said, "The day is free and we hope that training staff from across the industry will attend." Details of the day are as follows:

TITLE:
It used to work! How do we re-connect colleges with industry?
DATE:
Thursday 15th July 2010
TIMING:
10.00-17.30
LOCATION AND VENUE:
Cranfield University
COST:
Free

AIM OF COLLEGES DAY:

- To establish the demands and requirements of the industry
- To establish up to date capabilities and needs of the Colleges
- To look at the Funding issue
- Summary and Actions

PROGRAMME:

10.00 - Registration and Coffee

10.30 - **Welcome.**
Alastair Tulloch (Claas) Chairman of the AEA Training & Education Committee or Roger Lane-Nott (AEA CEO)

10.45: **Session 1. The Demand Side Requirement.**
The aim of this session is to try to establish what requirements of the manufacturers and dealers in training engineers but particularly technicians.
Farm Equipment Manufacturer/Dealer – 15 mins. Outdoor Power Equipment Manufacturer / Dealer – 15 mins.

11.15: **Session 2. The Supply Side.**
What can the colleges provide and what are their requirements and problem areas.
Further Education College – 15 mins. Higher Education College – 15 mins

12.00: **Debate. Chaired by Alastair Taylor (Chairman IAgrE E&T Committee)**

- What are the problems at present?
- How so do we re-connect the industry with the colleges?
- What are the main issues and what are the solutions?
- What can the manufacturers do to help?
- What can the colleges do to help?
- How can we market the industry to young people more effectively?
- Funding. What are the funding issues and how do we overcome them?

13.00: **Summary and Actions.**
A review of the sessions and the actions we have identified. (Roger Lane-Nott)

14.00: **Cranfield. Setting the Scene - Professor Tom Stephenson**

14.20: **Visits to Cranfield's specialist departments**
Including Precision Engineering, Welding, Soil dynamics, Materials etc.

15.30: **AEA Wash Up of the Day**

16.30: **Seminar - "*New Concepts for the Future of Agricultural Engineering*"**
Presented by Dr Abdul Mounem Mouazen of Cranfield University. The focus will be on the application of new digital technology to optimise field operations. The vision is to combine cutting-edge sensor and system control technology with predictive modelling of the soil-plant-water system at field scales. This might be described as 'second wave' precision agriculture, with activities in agricultural engineering, geographical information management and soil and land management.

Nuffield Frank Arden memorial conference

Conference debates new technologies that could transform British farming

MARION KING, IAgrE Press Officer reports

FARMERS and growers had a glimpse into the future recently at a conference focussing on how the UK agri-food industry can ensure it is equipped with the correct tools to rise to the challenge of feeding a growing world's population with potentially limited resources.

The event was the Nuffield Frank Arden memorial conference, which as well as introducing important new research, highlighted various case studies presented by past Nuffield Scholars, who demonstrated how the latest innovations are being put into practical use today. A round-table debate also provided delegates a unique opportunity to discuss their research needs with industry leaders, particularly in respect to what is required from the investment in agricultural research coming on line from the Technology Strategy Board.

Held at Peterborough's East of England showground and organised by IAgrE's Andy Newbold on behalf of Fusion Events, the Frank Arden Memorial Fund, is awarded by the Nuffield Farming Scholarship Trust, set up to support studies that address key topics of importance to the UK agricultural industry.

THE event launched two new studies by David Gardner, Head of Fruit Operations at the Co-Operative Farms and Farm Business Consultant Lindsay Hargreaves.

They presented research from awards they received to complete a unique study into 'New science and frontier technologies that have the potential to transform the UK agriculture and food sectors'.

David is currently responsible for the fruit '*Grown by us*' into the Co-operative stores. "I always believed that to be a successful farmer you have to be doing today what everyone else will be doing tomorrow," says David. "Identifying research relevant to your business is key to staying ahead, and I am hopeful that my study will bring some exciting science to the attention of UK farmers."

David's study covered gene technology with animals and plants, functional foods, non-foods, robotics and smart engineering. Gene technology is a relatively new science and is proving far more complicated than was originally thought. "To date it's just failed to live up to expectations but I believe the science is developing to the level where it will offer real benefits to the agricultural industry," said David.

His research looked at gene expression. "Scientists have identified huge numbers of individual genes along with their functions and it is clear that genes and gene expression is far more complex than first thought," he added.

What is particularly interesting to scientists are the differences in the genome - the genetic material of a living organism which possesses an entire set of hereditary instructions for building, running and maintaining an organism and passing life on to the next generation. In most living things the genome is made up of DNA and contains genes, which are packaged into chromosomes and affect specific characteristics of the organism.

David suggested this creates a huge opportunity to incorporate useful genes from 'wild' types into domesticated crops. Scientists have discovered a vast number of genes that influence characteristics as diverse as disease resistance to product quality. Plant geneticists have also made significant progress in understanding the principles of genetic medication.

The study also went on to look at how agricultural produce can be used for a whole variety of purposes beyond food, a potentially important resource, as fossil fuels increasingly decline. There are an amazing range of possibilities such as creating food packaging from straw and the development of an anti-coagulant from animal by-products.

ROBOTICS and smart engineering developments also offer enormous opportunities for agriculture. Many tasks in farming are labour orientated and mundane tasks can potentially be replaced by robots.

For example growing strawberries on table tops presents fruit to a robot in a better way than from the ground. Developments in sensor technology are creating a revolution in information that is available for farmers and systems are under development as diverse as an identifying crop disease to measuring livestock activity. Fruit harvesting is particularly challenging as ripe fruit will have to be picked without bruising the fruit.

Lindsay Hargreaves talked about how different agriculture will look in 30 years from now. Will farmers get more for less, how competitive will they be, what impact will they have on the environment and what does all this mean for farm security?

Lindsay suggested Nano technology, the science of the small, will have a huge impact. "It has the potential to create new materials and devices. One example is carbon filament technology where filaments of carbon similar to lattice tubes can be teased into threads and woven into a yarn, stronger than steel and one eighth the density. But it also raises many issues associated with the introduction of this new technology such as toxicity, the environmental impact and the potential effect on global economics to the doomsday scenario of the world ending when out of control self replicating robots consume all matter on earth whilst replicating themselves. These concerns have led to a debate about whether nanotechnology needs to be regulated," said Lindsay.

A PAST Nuffield Scholar focussing on vegetables and in particular carrots was Peter Gestry who talked about vegetable innovation and processing. In his energetic and passionate presentation Peter told the audience that he had enjoyed every minute of his Nuffield experience, mainly because of his enthusiasm for potatoes and parsnips and particularly carrots. "We are all aware that vegetables are extremely beneficial to our health," he pointed out, "but on average we still only eat three out of our five portions of fruit and vegetables a day.

"At the same time, there is a huge pressure on growers to produce blemish- free products, demanding specifications that require growers to spend millions on unnecessary agrochemicals as well on research to correct skin disorders," he continued.

Peter's study allowed him to take a global look at the innovative techniques adopted by growers, suppliers and retailers overseas to help increase the consumption of fruit and vegetables. He has recommended how growers can turn a low value product into a higher value food whilst increasing retained profit for the UK grower.

FINALLY the panel discussion talked about the importance of putting agricultural science back into the higher education curriculum and how scientists need to market themselves and their research to a wider audience to gain public acceptability for new technology in agriculture.

It was felt that industry was not taking advantage of research that had already been developed in the UK whereas in countries such as New Zealand the wheat industry for example is taking on board modern practices, many of which have been taken from British initiated research.

How do you improve the connection between the scientist and the farmer? According to David Gardner there are some scientists in the UK who believe we have lost the basic skills that interpret science on behalf of farmers. The solution could be requiring scientists to spend a proportion of their extension activities judging scientists and their impact on industry, working with industry groups and bodies and introducing awards for extension activities to raise its profile in the scientific community.

But farmers also need to take some responsibility to seek out new technology and understanding how they can apply it on their farms. David certainly hopes his study will encourage farmers to browse the web a bit more in search of technological breakthroughs that could transform their business.

Newly appointed Principal of Harpers Adams, Dr David Llewellyn talks to Landwards editor Chris Biddle about the buzz he gets from heading up the country's leading teaching and research centre for rural industries

Engineering a new future

A CONSTANT mix of excitement, occasional frustration and intense satisfaction is how Dr David Llewellyn sums up his role at Harper Adams.

Appointed to succeed Professor Wynne Jones as Principal last September, David had already been at Harper Adams for over 12 years. Prior to joining the University College, he spent most of his working life in academia with stints at the Law School at London's Kings College and the Institute of Psychiatry at the Maudsley Hospital in London.

You sense however that he has found real fulfilment working in the Shropshire countryside, heading up a team that will hone the skills and knowledge-base of those responsible for solving the future challenges of feeding the burgeoning world population.

We met just a few days before the General Election in early May. "It really is a pity that during the campaign there has been so little coverage or comment by politicians on food and farming issues," he says.

Instead, David Llewellyn knows that the main focus after the election will be on cuts in public spending, with the education sector under particular scrutiny.

"We'll have to fight our corner," he says, "but I hope that those charged with re-energising the economy realise that higher education is the real driver. However there is no doubt we are in for interesting times".

Against that, he says, there has been a significant renaissance of interest in countryside matters, both from consumers and at school level.

"We have experienced a lost generation of teachers and pupils who became disconnected from rural issues. Farm visits disappeared from the timetable, largely because of safety legislation, but also the increasing influence of major retailers meant that food was presented and marketed in a characterless manner, which is only now being addressed with the current emphasis on local sourcing.

"Then we had the scares over BSE and serious outbreaks of foot-and-mouth, which really influenced people's perception of farming and countryside.

"Add to that a systematic reduction in spending on publicly-funded research and development in the agricultural sector, and you had an industry that has been on the back-foot for far too long.

"Today, however, there has been a real re-awakening of interest in where food comes from and how it is produced.

"And that is down to many factors. TV programmes by the likes of Jimmy Doherty, campaigns such as the NFU's *Why Farming Matters*, organisations such as FACE and initiatives such as the Open Farm Sunday have really started to have an impact. At the same time, the supermarkets are providing far more information on the sourcing of the food they offer.

"Not before time," he adds. "Such a dip of interest has had a detrimental impact on recruitment into agriculture. The average age of a farm manager today is 58, we simply have to do something to address that."

Not surprisingly, given the timing of our conversation, David Llewellyn would not be drawn on anything other than general political observations, but it was probably no coincidence that the then Defra shadow minister, Lord Taylor of Holbeach made a major speech at the opening in March of the new post-graduate research centre at Harper Adams in which he outlined ambitious Conservative plans to boost UK agricultural productivity.

"Farming cannot be an industry of the past, it must be the industry of the future. We simply cannot stand still with so many mouths to feed in the future." he said.

DAVID Llewellyn says that in many ways a leading institution of science and learning such as Harper Adams can get caught in the cross-fire of conflicting messages.

"Reports such as Food 2030 launched by the Government only last January, along with the UK Cross-Government Food Research and Innovation Strategy also published in January both illustrated starkly the need to increase sustainable food production by 50% over the next 20 years, whilst at the same time reporting serious shortfalls in high-level skills within the agri food sector."

A green-light for institutions such as Harper Adams to receive full backing to achieve these objectives then?

Well, hardly. No sooner was the ink dry on these reports than the UKCES (UK Commission for Employment and Skills) published its National Strategic Skills Audit and placed the development of skills in agriculture and food production almost at the bottom of its table for priority attention in the period to 2017.

Dr David Llewellyn

"The report also showed that employment had fallen by 100,000 in both the agricultural and engineering sectors, but as far as both are concerned it is about advanced techniques and working smarter and faster. It is not simply a numbers game."

Not surprisingly, David Llewellyn was soon on the phone to the UKCES Chief Executive for an explanation of the findings.

"The report said that agriculture suffers principally because of skills deficiencies, yet based on the audit methodology the sector came way below financial services and retailing in their list of priorities".

It is unlikely that the Harper Adams Principal will have given vent to his true feelings but says that he made his point "that skills requirements need to be taken seriously".

"That is where the frustration element creeps in," he says, "ensuring that influential bodies have a joined up approach to the overwhelming need to feed billions of mouths over the coming years in a way that is both sustainable and environmentally-friendly".

That said, Harper Adams has laid down solid foundations over the past few years to meet the future demands of the agri-industry - and is continuing to invest heavily in providing new resources. Prior to his appointment as Principal, David was highly involved in the investment programme in new facilities at Harpers Adams, a role which he continues.

Wide-reaching applied research programmes are also particularly important to the University, as is its development of the OpenFields online research library *(see pages 20/21)* in which it is collaborating with other leading establishments such as the Royal Agricultural College, University of Reading, RASE and Farming Futures.

"It has to be part of our culture that we work hand-in-hand with industry," says David. "Industry needs us to provide the skill levels necessary for the next generation - and we need the industry to support our aims and objectives".

WHILST universities in general are facing an average increase in demand for admissions (23% in 2010), Harper Adams bucks the trend.

"Applications for our courses are up 50% year-on-year - students recognise that they stand a better chance of finding employment after attending Harper Adams than they do at some other higher education institutions."

The statistics speak for themselves. Over 96% of students graduating from Harper Adams find full-time employments within six months of finishing their course.

"I can quote you example after example, where students go out on an industrial placement as part of their 3 or 4 Year course, - and invariably come back with a job offer".

David Llewellyn freely admits that the biggest buzz he gets is from the attitude and outlook of the students.

"..the students are our best ambassadors"

"They are by far and away the best ambassadors for the University," he says.

"Student life at Harper Adams mixes hard work, fun and an invigorating social life - and much of the time these aspects are indistinguishable from each other.

"That must have a lot to do with the environment in which we work. Land-based industries are very practical, very hands-on and provide terrific satisfaction".

With over 4000 students at any one time, including 2700 on under-graduate or post-graduate courses, Harper Adams is growing ever more popular. In a recent poll of some 22,000 students covering 267 colleges and universities nationwide, Harper Adams was placed fourth in order of popularity - and it has been named as the University College of the Year for the past three years in the *Sunday Times University Guide*.

With a varied academic background, David Llewellyn says that he has the advantage of coming to the land-based higher education sector with no vested interests.

When it comes to the field of agricultural engineering, and engineering in general however, Llewellyn is firmly committed to ensuring that Harper Adams produces students who are able to turn science into practice.

He refers me to a fascinating article by J.D Turner from the University of Portsmouth on the way engineering has been taught over the years who suggests a radical re-appraisal. Turner says, "We need a fundamental revision of how engineering is taught at degree level. If engineering courses were perceived as fun, relevant and the gateway to a good career they would be more attractive, and the decline of students could be reversed."

David Llewellyn nods in total agreement "Engineering touches everything," he says. "It provides energy, enables us to manage essential natural resources such as water, make sure water flows, and ensures that crops are produced to feed the world."

Turner adds that in recent years, engineering has tended to become unfashionable and perhaps too insular, teaching specialist engineering subjects, fluid dynamics, electronics and the like, even though what employers want are well-rounded graduates able to relate specialist knowledge to the bigger picture and with excellent team-working and management skills. They do not necessarily need expertise in a narrow field that could well become obsolete in a few years.

"I believe at Harper Adams," says David Llewellyn, "that's something we have and will keep firmly in mind.

"We'll achieve it by producing graduates well versed in solid engineering principles and providing a means to update their skills over time, based on the latest practice - based research."

The Main Building at Harper Adams

Landwards
Agriculture • Horticulture • Forestry • Environment • Amenity

Conference 2010

Peter Leech installed as new IAgrE President

PETER Leech, has been appointed the new President of the Institution of Agricultural Engineers.

Peter has been Manager, Customer Support for John Deere in the UK & Ireland for many years and has just recently been promoted to the position of Regional Training Manager for Deere & Company, covering training within the region of Europe, CIS, North Africa and the Near & Middle East.

Peter became President at an official ceremony at the Institution's annual conference at Cranfield University on 11 May and his Presidency will last for two years.

An experienced agricultural engineer, Peter has played a key part in John Deere's success in the UK, having started his career with the company in 1971, just five years after it commenced trading in the UK.

Outgoing IAgrE President Richard Robinson, receives a plaque from incoming President Peter Leech

In his customer support role he has been instrumental in adopting new standards for customer satisfaction and loyalty, as well as developing many of the processes and standards that underpin John Deere's customer support and training policy in the UK.

Peter also developed and initiated the John Deere Ag Tech, Turf Tech and Parts Tech apprentice training programmes for dealers, which have been enormously successful and acknowledged with a National Training Award.

More recently he has been heavily involved in the development and implementation of the Landbased Technician Accreditation (LTA) scheme.

Peter said, "It is a great honour to be appointed to this important and distinguished role and a great time to be leading a dynamic and growing Institution. With an ever expanding world population and increasing demand for alternative energy solutions there has never been greater need for inventive, professional land based engineers and a professional Institution to support and represent them."

Peter has been actively involved with the Institution for 18 years and was presented with an Award of Merit in 2005 for his work in connection with young people and education. He is a Fellow of IAgrE and is registered as an Incorporated Engineer with The Engineering Council.

He is currently a member of Executive and Council and serves on the Public Affairs committee. Until recently he was Chairman of the Education and Training Committee of the AEA, where he served a 5 year term, and was instrumental in leading that group through the development of the LTA scheme. He is also a member of the Lantra Industry Group for land based engineering.

Addressing the Conference he said, "It is my intention to maintain and if possible accelerate growth in IAgrE Membership. During my 2 year term I have set a goal to see it grow by 15%"

"To ensure that happens my focus will be on the areas I understand and have experience with, they are what I call the 3 'T's. They are:

- **Technology**
- **Training**
- **Technicians**

With regard to technology I feel we need to focus on the engineering within our industries and ensuring new technologies and legislation are widely understood. The human interface to such new technologies is often overlooked and this is an important area.

"Training, this goes hand in hand with technology and is part of that human interface. The need to continually train and up skill, is important for all of us, CPD is essential.

"Technicians, these are the foundation of the Pyramid which is a professional institution, the IAgrE needs to continue along the path already set to make itself more accessible and relevant to this group.

"These three themes are I believe complimentary and timely as we start the second decade of this century."

Natural Turf for Sport:

Engineering Safe and Sustainable Surfaces

THE 2010 Landwards Conference held on 11 May at Cranfield University looked at the challenges facing those responsible for preparing and maintaining natural turf sporting surfaces for use in professional and recreational sport

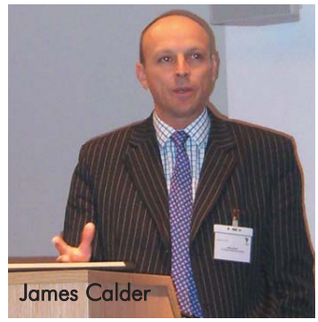
Effects of sports surfaces on the human ankle

SPORTS injuries follow a complex combination of events said James Calder, Consultant Orthopedic Surgeon at the Chelsea and Westminster Hospital.

They are increasing in frequency due to the general rise in public participation in sporting pursuits -and the elite athlete poses significant challenges for those treating them as their management may well differ from those 'weekend warriors' due to pressure demands from the clubs and the highest expectations of the individuals, managers and agents.

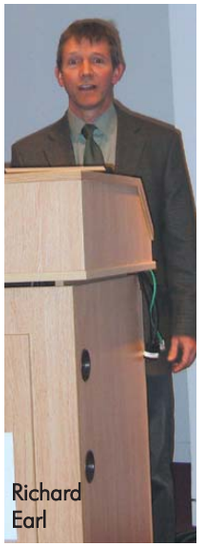
Injury prevention is becoming recognised as an important area to understand as many of the chronic conditions are not the result of unavoidable contact injuries but may be due to the interaction of training surfaces, shoe wear and training regimes. These chronic injuries and stress fractures are responsible for some of the longest periods away from training/playing.

Calder then discussed the various factors involved in the development of such injuries and also gave an overview of their treatments.


James Calder

Safe pitch contruction

DR Richard Earl of TGMS Ltd talked about the appropriate design, construction and subsequent maintenance of natural turf pitches essential to maintaining safe and sustainable playing surfaces.


Richard Earl

He focussed on raising awareness of pertinent issues relating to the initial assessment of a site designated either for remediation or development as a new sports pitch construction; pitch layout and design and fundamental soil and water properties that affect pitch performance and which need to be considered during the design and construction phases.

Dr Earl used a number of case studies including Wembley National Stadium, Donbass Arena (Shakhtar Donetsk, Ukraine) and Chelsea Football Club.

How sports surfaces work

QUANTIFYING performance of a sports surface is a challenge and is often dependent upon stakeholder opinion said Dr Iain James of Cranfield University.

Spectators and players are looking for an aesthetic experience; players and coaches are always looking for athletic or skill performance, but not always at injury risk; local authorities and schools will be looking at safety but also durability and resource consumption.

The consequence is that the requirements for sports surface performance are varied and demanding. This creates a challenge for the engineer: how to deliver against a range of performance standards, some of which are measured objectively, others subjectively.

Work by Cranfield University and partner institutions has begun to characterise the load-response behaviour of natural turf surfaces in a variety of field and laboratory investigations he said.


Iain James

Drainage, watering - and a Going Stick

OTHER speakers at the conference included **David Shelton** of Shelton Sportsturf Drainage Solutions (left) on the development of machinery to carry out good drainage practice; **Roger Davey** (near right) of Irritech who explained some of the criteria when designing effective irrigation systems for sports surfaces, and **Mike Maher** (far right) of Turftrax Course Services on the development of a Going Stick for the monitoring of sports surfaces, particularly racecourses.

AWARDS 2010

Ten members of IAgrE received awards at the Institution's annual conference at Cranfield University

THIS year's **Award of Merit** was achieved by Tim Chamen and an Honorary Fellowship was bestowed on Professor Paul Miller.

"The Award of Merit and the Honorary Fellowship are the highest accolades the Institution can bestow and the most rigorous judging criteria are applied," said Chris Whetnall IAgrE's Chief Executive.

Tim is a consulting engineer with a 25-year background of research into controlled traffic farming. He has been involved in soil cultivation and methods of avoiding compaction damage to soils for nearly 40 years.

Tim Chamen collects his award from Chris Whetnall at a branch meeting following the event

"Tim's strong commitment and belief in systems that can reduce soil compaction by managing traffic movement across fields has led to his established reputation in controlled traffic farming. This together with his broad experience of practical soil management and his wider involvement with engineers in the land based sector mean he is a very worthy recipient of The Award of Merit from the Institution," Chris added.

Professor Paul Miller is the author of many refereed and conference papers and is recognised as the leading international authority in his field. "He is a very versatile and well deserving candidate for this prestigious award who has made a very significant contribution to agricultural engineering at the highest level both in research and in the management of the profession," said Chris.

Peter Leech awards Professor Paul Miller

THIS year's IAgrE Awards for **Contribution to the Land Based Industries Sector** went to Professor Mike O'Doherty and John Palmer. The awards are made to members who have made sustained contributions to the land based sector throughout their careers.

Mike (PhD, DSc, Fellow IAgrE, Member ASABE) has served in agricultural engineering research for over 40 years, the first 20 of which began at the National Institute of Agricultural Engineering in 1969 and the latter at Silsoe College of Cranfield University. On retirement he joined Silsoe College part time to teach engineering mathematics, instrumentation, research methods and helped in the supervision of over 30 PhD students. Mike continues as a visiting Professor at Cranfield University.

Mike O'Doherty receives his award from Peter Leech

John Palmer is the training manager at Claas UK and has been involved in various aspects of engineering throughout his working career with his main involvement being agricultural service engineering. "The industry is indebted to people with enthusiasm and drive, who make things happen and John is a good example of such a person," said Alastair Tulloch MIAgrE, After Sales Manager & director of Claas UK.

Peter Leech congratulates John Palmer

“. . . he has made a very significant contribution to agricultural engineering at the highest level both in research and in the management of the profession”

IAgrE Chief Executive Chris Whetnall on Professor Paul Miller who was presented with an Honorary Fellowship

Brenda Dwyer presents Andy Newbold his certificate

THE **Michael Dwyer Memorial Prize** which is presented to a mid-career engineer who has made outstanding progress in the agricultural engineering industry went to Andy Newbold.

Andy is event director for Fusion Events where he runs a portfolio of technical shows and exhibitions, including the Precision Farming Event, UK Grain, the Agricultural Buildings Show and the Farm Energy Event.

THE **Douglas Bomford Trust Award** is presented to the author(s), at least one of whom is an Institution member, who demonstrates originality and technical excellence in a scientific paper published during the previous year in either the Institution Journal *Landwards* or *Biosystems Engineering*.

Assessment criteria include: engineering content, potential for a practical and commercial use, relevance to the current problems and needs of industry as well as quality of presentation and the author’s authority in the subject material.

Professor Dick Godwin hands Shane Ward his award

This year the award went to Professor Shane Ward. The papers, ‘*Identification of high-injury-risk glass contaminants using simple shape measures of fragment outlines*’, and ‘*Ranking of risk of injury from glass contaminants using Fourier shape measures of fragment outlines*’ were published in *Biosystems Engineering*.

Shane, a Professor of Biosystems Engineering at UCD University College Dublin and IAgrE member, accepted the award on behalf of colleagues Ayalew and Holden.

THIS year’s **Johnson New Holland Trophy Award** winner is Rhys Morgan of Harper Adams University College.

The award is presented annually with the object of encouraging and recognising innovation by younger students, to the best final year project submitted by a student of group of students as part of a First Degree, Higher National Diploma or Higher National Certificate course in Agricultural Engineering.

Rhys’s paper was entitled ‘*The design and development of an automatic park brake system for a 7000 JCB Series Fastrac*.’

Ryhs Morgan of Harper Adams receives his Johnson New Holland Trophy from Phil Walbank, CNH Technical Support Manager UK & Ireland

BRANCH MERITORIOUS SERVICE AWARDS

THESE awards are made to members who consistently deliver outstanding service to an IAgrE branch.

This years honours go to (left to right):

- Michael Hadley (West Midlands Branch),
- Kevin Grundey (Yorkshire branch)
- Gordon Williamson (Yorkshire branch).

young engineers 2010

The Coventry Motor Museum played host to this year's Young Engineers Competition, which saw records broken and rules flouted (*by some*)

THIS year's Young Engineers Competition broke a number of records:

- **Plumpton College (not present this year) lost the accolade of longest distance travelled to a YE Competition to SAC who came all the way down from Scotland.**
- **Winning entries in both Class 1 and Class 2 did not use their wheels to gain traction.**

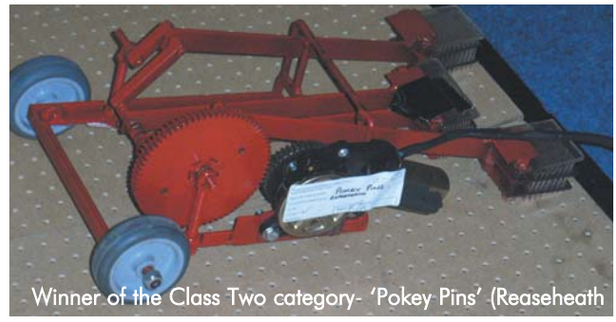
PROJECTILES were much in evidence this year with one entry (the 'Pocket Rocket' - a hand primed catapult that would have made *Just William* proud) banned outright for contravening rule 3.

The venue this year was the Coventry Motor Museum where we were all made very welcome. The day commenced with messrs Robinson Major and Robinson Minor (of lead sponsors and organisers - Autoguide Equipment) erecting the ramp under the watchful eye of IAgrE CEO Chris Whetnall.

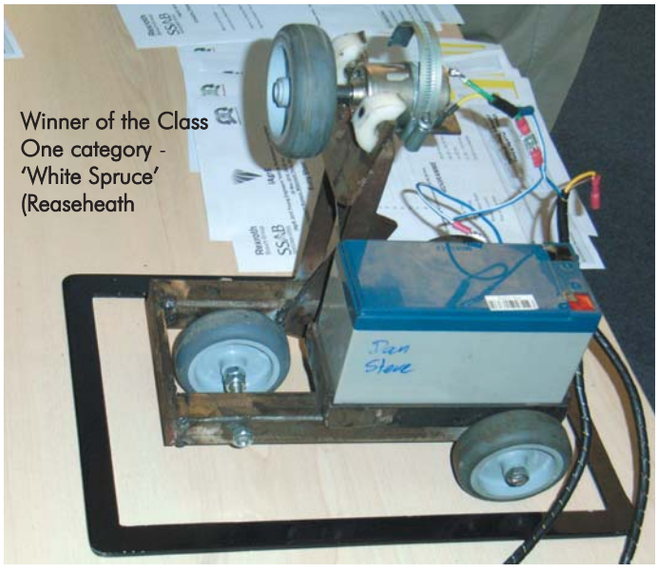
Chris, armed as usual with his wide array of heart pills, immediately saw the need to dip into this collection as the ramp took shape rather close to one of the fire sprinklers. Mindful of previous heart stopping moments, he chose to keep quiet and hope for the best . . . perhaps not the best of judgements as events turned out.

The scrutineers (those Robinsons again), ably assisted by Craig Grant of Sponsors Bosch Rexroth, did their bit and classified those that were within the rules and those that were not. There were 18 teams in all, 2 from SAC, 12 from Reaseheath and 4 from Brooksby.

All were awarded prizes ranging from £10 pounds (12 runners up) and cash prizes of £150, £125 and £100 (all plus Bosch Tools) for the 1st, 2nd and 3rd places in two classes making a prize fund of £870 in all. Even *Just William*'s catapult team were given £10 in the hopes that they would go away and come up with something within the rules next year (or perhaps just go away).



Winner of the Class Two category- 'Pokey Pins' (Reaseheath



Winner of the Class One category - 'White Spruce' (Reaseheath

Winners were:

CLASS ONE

- 1st Reaseheath - 'White Spruce'
- 2nd SAC - 'The Ram'
- 3rd Reaseheath - 'Cat'

CLASS TWO

- 1st Reaseheath - 'Pokey Pins'
- 2nd SAC 'Craibstone on Tour'
- 3rd Reaseheath 'Coopster'

'WHITE Spruce' should probably have been banned as fitting into the projectile category but unfortunately the closet lawyers deemed it acceptable.

Quite cleverly designed, one of the four supplied wheels was spun up to some considerable rpm before being ejected off its shaft and allowed to spin its way to victory. (Such was the velocity of the wheel in transit that it managed to complete three 'cycles' of the track (up to the laser height measuring bar - bouncing back to the carpet where it regained traction completing another two circuits before being deftly caught by its handler)).

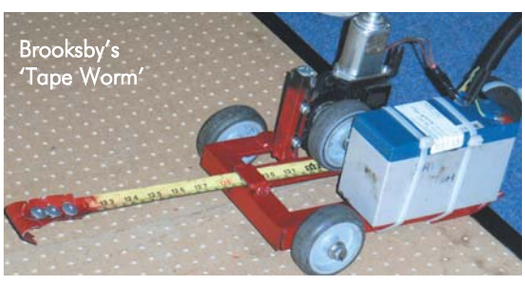
Ian Benson of sponsors Lucas Fettes deep in conversation with Richard Trevarthen IAgrE and Guest

Chris Whetnall, meanwhile, could be seen to be chomping on his heart pills as the wheel spun dangerously close to the aforementioned Sprinkler head. There was also muttering from the Judges about having to include the words 'envelope' and 'contained within' somewhere in next year's rules!

'Pokey Pins' was probably the most elegant solution being Classified Class Two because it did not fit within the defined measurements. Essentially a walking machine, it gracefully and leisurely made its way up the ramp utilising the peg board holes as purchase for the multitudinous 'pokey pins' on its three feet.

Other entries included:

- 'Tape Worm' - a rework of the Brooksby motorised tape measure (which suffered from that affliction known to all d.i.y.ers of 'droop' just before the measured length is achieved).
- A couple of grappling irons which either failed to reach design velocity or failed to grapple (or indeed - both).
- A motorised 'siege tower' which failed to deploy and was probably too short anyway.
- A motorised wire brush 'Scrubber' (designed to get the bristles of the brush engaging with the peg board holes but failing to do so in a meaningful way) which at least left the 'raceway' clean.
- A twin propeller device which perhaps did better than its geometry suggested.



Brooksby's 'Tape Worm'

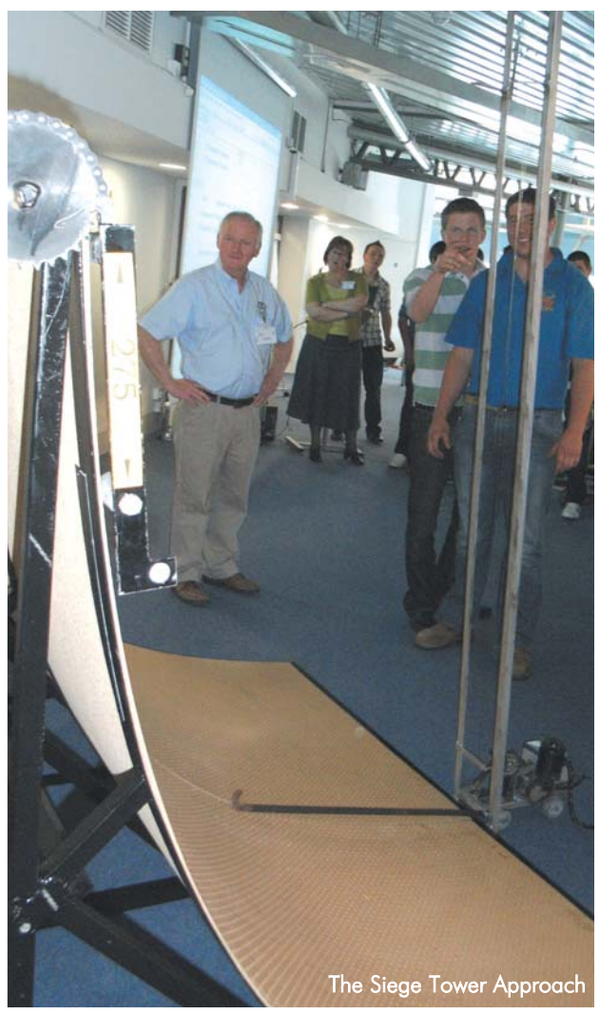
NEW sponsors this year were Lucas Fettes (Insurance Brokers) represented at this event by Ian Benson.

Whilst the Judges were deliberating, Ian took the opportunity to speak to the assembled throng about the importance of carrying out risk assessments and the need to take out appropriate Professional Indemnity and / or Personal Liability insurance. A timely reminder given the proximity of the ramp to the fire sprinkler head.

Thanks to all who took part and those who supported including, in particular, the sponsors - Autoguide Equipment, Bosch Rexroth and Lucas Fettes. And last but certainly not least, thanks to Sylvia Harris for herding the cats.

Winners Class 1 (Steve Bowen and Dan Baron) receiving their prize from Craig Grant (right) of Bosch Rexroth

Chris Whetnall is reportedly recovering quietly in a darkened room and will be OK . . . in due course (or at least when his memory has faded).



The Siege Tower Approach

. . . There was muttering from the judges about having to include the words 'envelope' and 'contained within' in next year's rules!

OpenFields

The Landbased Library Online

Harper Adams University College has developed a new online research library for the landbased industries - TERRY PICKTHALL explains

AMONGST the many recommendations of the previous Government's 'Food 2030' food strategy report was the importance of being able to put the findings from scientific research into practice.

Similar themes are also highlighted in 'The Current Status of Soil and Water Management in England' report (RASE, 2008, *http://ofi.openfields.org.uk/1.09090307*), written by Professor Dick Godwin et al.

Talking about the findings of the report to the BBC in October 2008, Professor Godwin said, "I think the major concern of the Royal Agricultural Society of England in commissioning this report was really in 'Where do farmers get their advice from, where do they get new applied research?'". He added that 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.

Having been at the forefront of applied agricultural research for much of its history, Harper Adams University College has an important part to play in providing the practitioner with learning that goes beyond what is taught in college classrooms, workshops or fields. A new Harper Adams initiative is leading the way in putting research into practice; the development of **OpenFields** - the online library for the landbased industries.

OPENFIELDS is a free to use resource for practitioners, industry professionals, academic staff, researchers and students involved in the landbased industries.

It has been developed through the National Rural Knowledge Exchange, a partnership of 14 universities based at and led by Harper and funded by the Higher Education Funding Council for England.

OpenFields' aim is to encourage open-access publishing of technology transfer, research, and open learning materials in the rural sector. Its primary focuses are on food, farming, the environment, energy and rural business. The concept is based on existing successful open-access libraries used by the medical sector and has been developed for the rural sector by a small team based at Harper Adams. The library is simple to use but powerful, with the user able to navigate from quick search box to full document within 3 clicks.

The library was launched in the autumn of 2009 and already contains well over 1,200 items of technical information and research, including items on Agricultural Engineering and Soil and Water Management.

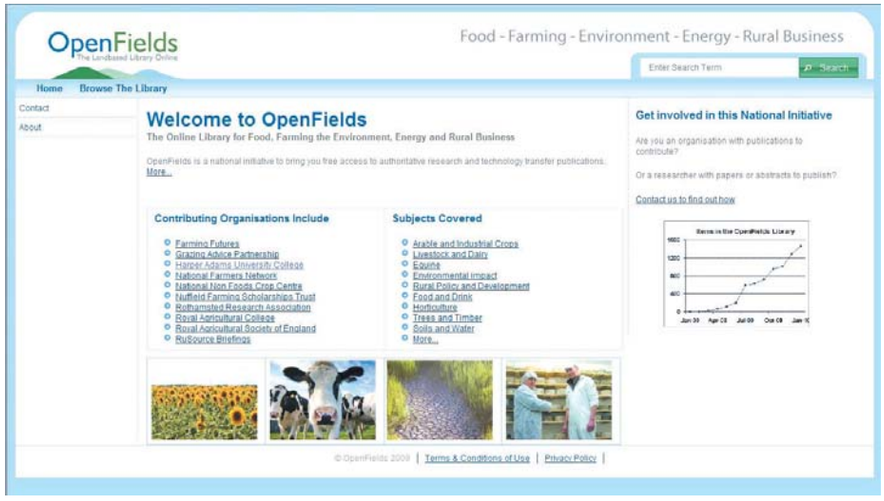
All technology transfer notes and most research or conference papers are available as full text and can be downloaded free of charge. Each hosted item has its own, permanent address in the library which can be used to link to it from other web pages or documents. Examples of these useful links are shown with the examples of RASE, IAgrE and Harper Adams items available in the library covered in this article.

The library's content is diverse, reflecting the complexity of the rural knowledge landscape. Through a small team of specialist technical authors Harper Adams has produced over 130 knowledge transfer reports which mirror this diversity: from assessing newt populations in college ponds (*http://ofi.openfields.org.uk/1.09120610*) to understanding how chassis design and operating conditions can affect tractor performance (*http://ofi.openfields.org.uk/1.09020005*).

Items are also being contributed by a number of other leading rural organisations and institutions, including the IAgrE, the Royal Agricultural Society of England and the Royal Agricultural College.

The Harper Adams series of technical notes are intended to be easy to understand and clearly communicate implications of research work and other recent technological developments. The HAUC Engineering Department has a diverse collection of nearly 40 technical notes, research papers and streaming videos on topics including:

The OpenFields homepage



- An introduction to Controller Area Network (CAN) (*http://ofi.openfields.org.uk/1.10040586*) and ISOBUS (*http://ofi.openfields.org.uk/1.09120599*) and how these electronic systems are being utilised on agricultural vehicles and implements.
- An overview of Ianto Guy's Bomford Trust-sponsored PhD research project on tractive efficiency modelling and measurement on tractors (*http://ofi.openfields.org.uk/1.09070022*)
- A summary of Leticia Chico Santamarta's Bomford Trust-sponsored PhD research project on the use of oil seed rape straw as a biofuel (*http://ofi.openfields.org.uk/1.09080165*) A full copy of her recent ASABE conference paper (*http://ofi.openfields.org.uk/2.10020294*) and a four minute video on her project (*http://ofi.openfields.org.uk/1.10030763*) are also available, demonstrating how a project can be communicated in differing levels of depth for the different target audiences that are using the library
- Two notes on how Whole Body Vibration (WBV) can be reduced on construction and agricultural vehicles (*http://ofi.openfields.org.uk/1.09110472*) or by maintenance and adjustment of vehicle seating (*http://ofi.openfields.org.uk/1.10030709*)
- Several notes on farm buildings covering design principles (*http://ofi.openfields.org.uk/1.10030698*) , computational fluid dynamics of building air mixing and ventilation (*http://ofi.openfields.org.uk/1.10040585*) and the use of a Lely Juno feed sweeper robot (*http://ofi.openfields.org.uk/1.10030762*) at the new Harper Adams Farm Dairy Unit.

THE OpenFields team have been very pleased to welcome the IAgrE as a contributing organisation to the library.

The IAgrE collection contains a recent copy of Landwards (*http://ofi.openfields.org.uk/1.10050713*) and an archive of many of the old SaWMA journals, an example of which can be found at *http://ofi.openfields.org.uk/1.10040554*. These important and historic journals, the future availability of which was highlighted in the RASE soil and water report, are now available for everyone to read and download, both in OpenFields and on the IAgrE website. They contain a wealth of fascinating articles, many of which are still of considerable relevance to today's practitioners.

The IAgrE OpenFields collection demonstrates how open access publishing can provide an alternative method of marketing what a subscription-based organisation can offer to potential new recruits but without giving away the 'crown jewels' that could alienate existing members who pay to access content.

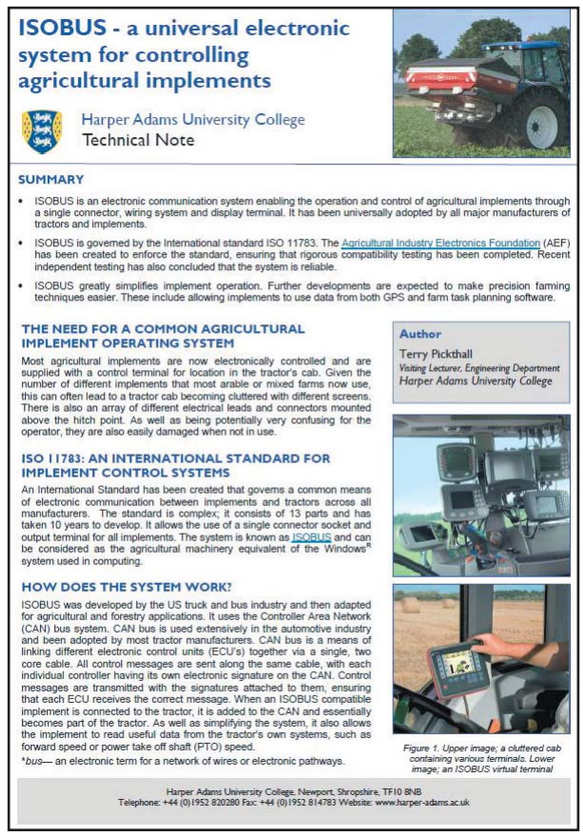
One perfectly valid question that we have been asked by many potential contributors is 'why should I host things in OpenFields when the items are already available on my own website?' Our belief is that items hosted on organisational websites can be likened to displaying your goods in a specialist corner shop - very useful but few people who don't already know about them are aware that they exist.

Google may well visit and index your site with its 'WebCrawler', but how accurate is this robot in cataloguing the content? The way in which your information is hosted and displayed will influence how high up the search returns you are or can result in you not being listed at all. Although everyone uses search engines like Google to find information, few are willing to trawl through the pages and pages of results that they get from a search, so getting on that magic first ten returns is vital.

OpenFields uses a commercial software package which has been specially customised. The software is able to index full document texts in the search database, even from pdf files. The database also uses carefully constructed metadata fields and these clear and accurate records are made available to the Google WebCrawler. This includes a one or two line short summary which clearly states what the item is about.

As OpenFields continues to grow we believe it will become well recognised and trusted 'information supermarket' for the rural sector, bringing organisations' content to a wider audience. It is therefore advisable to host content both on your own site and in OpenFields - a process known as syndication.

This will be made easier when means of allowing records to be collected or 'harvested' from contributors' websites without human intervention become available - an initiative that the OpenFields team are developing and hope to make available soon.



ISOBUS - a universal electronic system for controlling agricultural implements

Harper Adams University College
Technical Note

SUMMARY

- ISOBUS is an electronic communication system enabling the operation and control of agricultural implements through a single connector, wiring system and display terminal. It has been universally adopted by all major manufacturers of tractors and implements.
- ISOBUS is governed by the International standard ISO 11783. The Agricultural Industry Electronics Foundation (AEF) has been created to enforce the standard, ensuring that rigorous compatibility testing has been completed. Recent independent testing has also concluded that the system is reliable.
- ISOBUS greatly simplifies implement operation. Further developments are expected to make precision farming techniques easier. These include allowing implements to use data from both GPS and farm task planning software.

THE NEED FOR A COMMON AGRICULTURAL IMPLEMENT OPERATING SYSTEM

Most agricultural implements are now electronically controlled and are supplied with a control terminal for location in the tractor's cab. Given the number of different implements that most arable or mixed farms now use, this can often lead to a tractor cab becoming cluttered with different screens. There is also an array of different electrical leads and connectors mounted above the hitch point. As well as being potentially very confusing for the operator, they are also easily damaged when not in use.

ISO 11783: AN INTERNATIONAL STANDARD FOR IMPLEMENT CONTROL SYSTEMS

An International Standard has been created that governs a common means of electronic communication between implements and tractors across all manufacturers. The standard is complex; it consists of 13 parts and has taken 10 years to develop. It allows the use of a single connector socket and output terminal for all implements. The system is known as ISOBUS and can be considered as the agricultural machinery equivalent of the Windows® system used in computing.

HOW DOES THE SYSTEM WORK?

ISOBUS was developed by the US truck and bus industry and then adapted for agricultural and forestry applications. It uses the Controller Area Network (CAN) bus system. CAN bus is used extensively in the automotive industry and been adopted by most tractor manufacturers. CAN bus is a means of linking different electronic control units (ECU's) together via a single, two core cable. All control messages are sent along the same cable, with each individual controller having its own electronic signature on the CAN. Control messages are transmitted with the signatures attached to them, ensuring that each ECU receives the correct message. When an ISOBUS compatible implement is connected to the tractor, it is added to the CAN and essentially becomes part of the tractor. As well as simplifying the system, it also allows the implement to read useful data from the tractor's own systems, such as forward speed or power take off shaft (PTO) speed.

**bus*— an electronic term for a network of wires or electronic pathways.

Author
Terry Pickthall
Visiting Lecturer, Engineering Department
Harper Adams University College

Figure 1. Upper image; a cluttered cab containing various terminals. Lower image; an ISOBUS virtual terminal

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A cover of a HAUC Engineering technical note on the ISOBUS system written by Terry Pickthall

All items displayed in OpenFields have a clear indication of their pedigree, with a frame on the right hand side of the summary information page displaying the logo, strapline and web address of the contributing organisation. This is intended to encourage users of the library to visit the contributor's site as well as view their content in OpenFields. One way this can work very effectively well is to place your older, but relevant materials in OpenFields and then encourage users to visit your site to find out more on how to join up and access the latest content.

OpenFields is very much a growing resource and new contributors are welcomed, as is feedback from users on content that they would like to see available in the library.

To get involved, a good first step is to visit the library at **www.openfields.org.uk** and have a good look at what is on offer. You can also contact the management team at **support@openfields.org.uk**.

. . . The library was launched in the autumn of 2009 and already contains well over 1,200 items of technical information and research including items on Agricultural Engineering

The Jubilee Learning Centre

Tackling the global food challenge

The new Centre for Contemporary Agriculture, a collaboration between the University of East Anglia and Easton college, aims to deliver first class education and skills-training in agriculture and food production

THE huge global challenges of future food security, sustainable agriculture and innovative agricultural training and education will be tackled by a new centre in Norwich incorporating expertise from the University of East Anglia and Easton College, research institutes from the Norwich Research Park and the Eastern region, and the food and agriculture industry.

The Centre for Contemporary Agriculture, launched on 27 April, represents a strategic innovation in training and education in agriculture and the food industry.

Professor Edward Acton, Vice-Chancellor of the University of East Anglia, said,"Incidents such as the grounding of aircraft because of volcanic dust bring home to us how crucial it is that the UK becomes able to grow much more of its own food sustainably and for years to come. Countless health challenges underline the need to bring additional knowledge and skills to the food industry.

"This new centre, based on an innovative partnership between the University and Easton College, has the potential to make a major impact all along the agri-food chain. Its focus is both global and local, with its teaching being informed by world-class research and by practical business experience. The centre will draw directly on UEA's research, on that of the John Innes Centre, which leads the world in plant science, and on that of the Institute for Food Research, Britain's premier institute in the field. It is a very exciting development for Norfolk and has major implications for agriculture and the food industry across the globe."

The centre was opened by Professor Ian Crute CBE, first chief scientist of the Agriculture and Horticulture Development Board and former Director of Rothamsted Research.

Professor Crute gave the centre's inaugural lecture, '*Knowledge, Skills and New Technologies - essential ingredients for the future of farming*' to an invited audience of over 200 academics, scientists and members of the agriculture and food industries. The lecture took place in the new £15 million Jubilee Building at Easton College, opened earlier in the day by Professor Edward Acton.

David Lawrence, Principal of Easton College, said, "This is a vitally important day in the history of Easton College and for the industries we serve. Higher level skills are going to be critical for the long term competitiveness of our industry.

"We are delighted to be part of a strong, innovative and possibly unique partnership committed to addressing these skills and applied research challenges. We are all keen to move forward in a close working partnership with the industries we serve."

A recent report indicated that 60,000 additional skilled staff must enter UK agriculture over the next decade if food production is to be maintained at its current level. And the report '*High Level Skills for Food*', by Government Chief Scientist John Beddington, highlights a need to improve skill levels in the agri-food sector and to ensure the availability of trained staff in specialist areas, particularly as the average age of British farmers is now 59.

Professor Ian Crute - Chief Scientific Officer for the Agriculture and Horticulture Development Board gave the Inaugural Lecture at the Centre, entitled *'Knowledge, Skills and New Technologies - essential ingredients for the future of farming'*

Professor Beddington has also said that unless action is taken now, the world could face catastrophe, due to a combination of rising population, reduction in water for agriculture, rising energy costs and climate change.

Jeff Halliwell Managing Director of Bernard Matthews Farms has said that they "are strongly supportive of this important development. Individuals with higher level technical skills are vital for the long term competitiveness of our industries as is con-

tinuing applied research. We look forward to working closely with the new Centre for Contemporary Agriculture to ensure our industries get maximum benefit from this innovative partnership."

UEA plant scientist Professor John Turner, chair of the new centre, commented, "The agri-food sector is being asked to produce food at current levels, but with lower inputs of energy and agrochemicals and, at the same time, meet the highest standards of food safety.

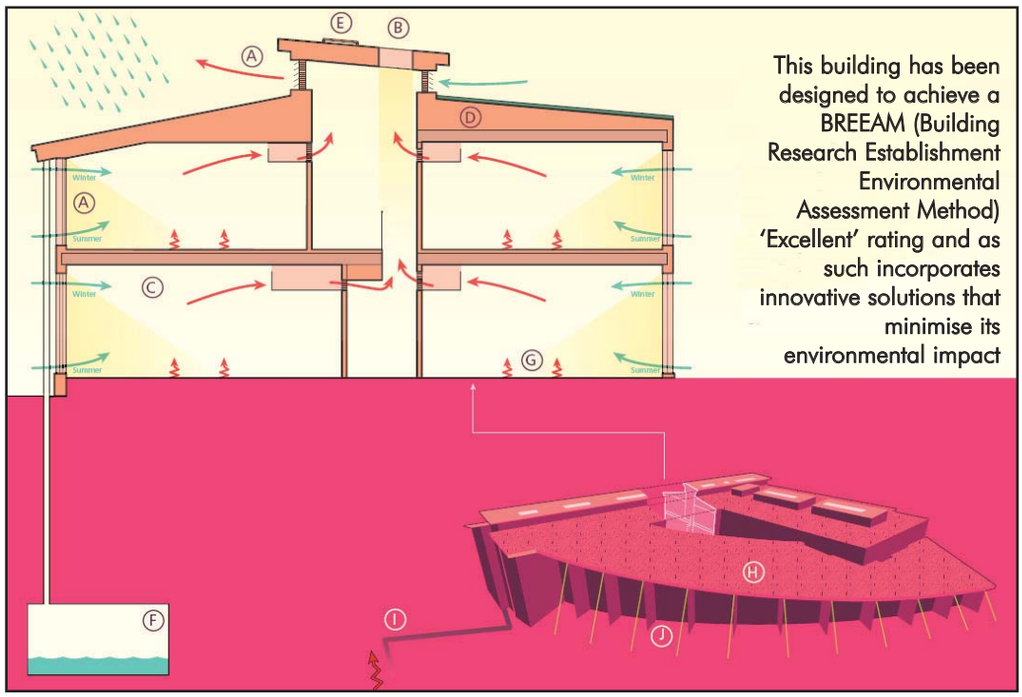
"As a nation that imports more than 30% of the food we consume, we must be aware of and plan to avert predicted international food shortages over the decades to come. The CCA will form a major part of the East of England's response to this massive challenge."

UEA and Easton are developing new undergraduate and postgraduate courses, as part of the Centre for Contemporary Agriculture's education strategy, with students undertaking placements in agriculture and food businesses. Employees already working in related organisations will have the opportunity to undertake continuing professional development courses based on the new degree modules.

For more information, see: www.contemporaryagriculture.com

The Jubilee Learning Centre

The education and training organised by the Centre for Contemporary Agriculture, in collaboration with industry partners, will be flexible is in its delivery location and scheduling. However as a starting point the Centre will be based in the Jubilee Learning Centre at Easton College. This sustainable, state of the art, low carbon building will provide an ideal environment in which to educate and train the technicians and technologist of the future



This building has been designed to achieve a BREEAM (Building Research Establishment Environmental Assessment Method) 'Excellent' rating and as such incorporates innovative solutions that minimise its environmental impact

A. **Natural Ventilation** keeps the air fresh… by drawing clean air into the classrooms at either high or low level, depending on the season, and extracting stale air through acoustic baffles into the open corridors where it is carried away via roof cowls positioned to utilise the prevailing wind.

B. **Natural Light** minimises the need for artificial light; skylights bringing natural light to the ground floor corridor via voids in the floor. These voids also allow the passage of air as described above.

C. **Acoustic Control** keeps the noise down by using sound absorbing panels at ceiling height in the classrooms and wall panels in the corridors.

D. **Thermal Mass** keeps it warm in the winter and cool in the summer. Dense concrete construction helps to maintain temperature control and cools the building down quickly on summer nights.

E. **Solar Water Heaters** use the heat from the sun to heat the water to wash your hands all year round.

F. **Rainwater Harvesting** reduces water usage by collecting rainwater run off from the North roof and storing it underground where it can be used to flush the toilets.

G. **Under Floor Heating** gently heats the building via coils embedded in the floor at a lower temperature that is required for radiators.

H. **The Green Roof** provides a habitat for ecology whilst minimising the visual impact of the building. It is planted with Sedum Moss, Thyme and Wild Strawberries. The plants slow water run off when it rains, reducing flood risk further down the water course.

I. **The Ground Source Heat Pump** heats the building from the natural warmth below the ground. Water from a natural aquifer is pumped into the building and the heat is transferred to the under floor heating system.

J. **Sun Protection** keeps it cool in the summer by utilising the shade from the overhanging eaves and plants growing up cables on the South side of the building. In the winter the plants lose their leaves, and the low winter sun penetrates the buildings where it helps to generate warmth. Solar Control Glass prevents overheating in the summer.

This list is not exhaustive of the measures required to achieve a BREEAM Excellent rating. For more information see the Building Research Establishment website: www.breeam.org

Education: Secure your future

John Deere Parts Tech students

GEOFFREY WAKEHAM belives that with the failings in the education system, industry should be on hand to offer young people integrated training programmes

OVER recent years there has been a general trend that shows how well the British education system is performing and so improving the skills and knowledge of school leavers.

Over recent years, on the other hand, there has been a stream of complaints regarding exam grade inflation and the dumbing down of course content. Many primary school children are failing to grasp the basics of mathematics and the written word. They enter secondary education unable to cope and never recover.

At secondary school and beyond the acceptance of *Wikipedia* as the sole reference source and the use of short extracts as the only text for study is alarming. In a recent exam the children were provided with two short passages of source material that provided a fair proportion of the one word answers required. The sections requiring "continuous prose" provided a space of ten or so lines to write the answers.

No wonder many school leavers are unable to research a topic or construct a well argued response to an open ended question. With multiple choice questions a non-English speaker can, on average, get a mark of 25%. As at least one question in each block of four inter-connected questions would appear to have an obvious answer then someone with an ability to read, should be able to achieve a minimum of 33% with little difficulty.

The marking scheme encourages guessing. 'I do not know the properties of this steel I am going to use for this bridge design but I will have a guess. Any deep research is beyond me.'

(As an aside and more a comment on discipline and training for life than academic quality, when I asked why most of the children attending a citizenship examination had no pens, let alone the required black pens, I was told, "We are in the twenty first century now". I must be getting old as I could not see the relevance of this testy response.)

The use of the World Wide Web has led to the rewiring of users' brains. Deep study and analysis have become difficult for many teenagers. Wide ranging shallow knowledge provides a better informed populace lacking in intellectual skills. It has been likened to having a doctor who knows a bit about 99% of all possible diseases rather than one who knows 99% about the complaints we most likely have.

The Universities claim that A Levels are no longer a reliable indicator of ability and are having to use the first year of courses for remedial work. Employers are finding it more and more difficult to find recruits with basic academic skills in Mathematics and Literacy.

Though I have deplored the headlong drive to increase the percentage of people with degree level qualifications, the current squeeze on places at universities is presenting many young people with very difficult decisions. I am sceptical that sound advice and quality alternatives are available for the middle ability band of school leavers who may be rejected by their first choice of University.

IT is all very well being worried by current problems in education but the limitations of earlier systems can in part be blamed for the decline in Britain's manufacturing industries.

Certainly in my case, school did not promote manufacturing as a career and entrepreneurship did not enter my vocabulary till well after tertiary education. Tertiary education though technical, failed to relate the science to practical problems and except for highly structured laboratory work, lacked any investigational or analytical work.

Distinctions were achieved by reproducing class work, not

> “Industry needs to seek out these disappointed engineers and offer them a four-year training programme fully integrated into a foundation degree ”

by using imagination and innovation. My employer made no obvious attempts to link my college training to my apprenticeship, they functioned as separate worlds.

So, as an industry, what can we do to promote better education and capitalise on the current situation. Changes made at primary school next year will not be demonstrated in a new employee for eight or more years and seventeen or eighteen for a future Chartered Engineer.

This should not stop the leaders of the industry, be they CEOs of companies or Presidents of relevant Institutions and Associations, from lobbying ministers and MPs for a return to basics at primary school. I am not sure we need sexually aware, web savvy, culturally informed caring environmentalists at ten or eleven unable to add up simple numbers or write a coherent sentence.

Young children need to be able to read and write and understand numbers first and foremost, the rest are luxuries. Primary school teachers need to have skills in English and Maths way beyond a C grade at GCSE level.

At secondary schools, with the extension of compulsory education to 18, there will be a need for teachers and advisers able to meet the needs of academically less committed sixteen and seventeen old students. Industry could and should forge relationships with their local secondary schools to promote their needs and employment opportunities.

They should provide projects and expertise, technical visits and let teachers attend their internal training courses. That way we will have a more committed and focused final two years of education with students well informed on what they might achieve in later life.

I have expressed my views on higher and further education on a number of occasions in the past and can only repeat my gratitude for the help I received both as a lecturer and course manager. I trust companies within our industry continue to support and encourage young people training to become Land Based technicians and engineers.

There is however a new situation developing which could offer significant advantages to those willing to seize the moment. It will not be easy and will demand four or more years of serious commitment but the rewards could well outweigh the time and effort required.

The squeeze on university places due to funding constraints coupled with high youth unemployment, means there will be many disappointed 18 year olds come September. The slightest slip in grades at A level will mean that some of the best students will fail to gain a place on their first choice course at their preferred university or college. If they are academically strong, second choices will be available but they will still be second choices.

Industry needs to seek out these disappointed engineers and offer them a four-year training programme fully integrated into a foundation degree followed up with a full degree where appropriate.

My local FE College offers part time tuition for a foundation degree in a range of engineering disciplines and students can progress to the local University for a full degree, all on a part time basis. These may be at a reduced level of fees to a full time degree. Trainees would be employed for three days a week plus full time during academic holidays.

At the end of the four years the employer will have a committed and highly knowledgeable member of staff, hopefully free of crippling debt. If the work and study are matched then both will be enhanced.

It is not an easy option but done well you could end up with far more than you hoped for or expected.

Registration of engineers and technicians receives government backing

THE Engineering Council welcomes proposals by Lord Sainsbury’s Technician Working Group for the creation of a Technician Council to promote registration of Engineering Technicians (EngTech) and Incorporated Engineers (IEng) - and their equivalents in science, health and ICT.

The proposals were requested by Lord Mandelson in the ‘Skills for Growth’ White Paper in November 2009. The Government had recognised that intermediate skills were inadequately represented in the working population and insufficient status was awarded to engineering, science and health professionals at this level and above.

Andrew Ramsay, Chief Executive of the Engineering Council - himself a member of Lord Sainsbury’s Working Group developing the proposals - said, “This initiative provides evidence that there is at last a real understanding by Government and the civil service of the need to accord significant status to the UK’s Technicians.

“We also welcome the endorsement of the framework we have developed for the engineering profession for assessment of professional standards of competence."

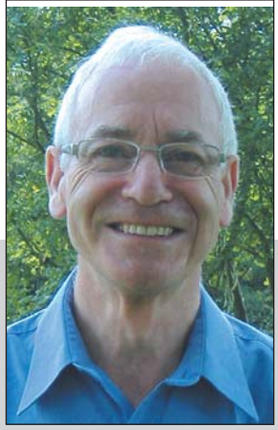
Lord Sainsbury said, “The supply of technicians is critical to the long term health of the UK economy, and in my discussions with key stakeholders in industry, government, public services and the professional bodies I have found widespread support and great enthusiasm for action to improve it.

“The establishment of the Technician Council will provide a simple and effective mechanism for channelling this support into promoting the professional status of and recognition for technicians.”

National Grid chief executive Steve Holliday has been appointed as chairman of a new national Technician Council. He said, “As the Chief Executive of National Grid I am only too aware of how important technicians are to the success of our business. I am delighted to have been asked to chair the Technician Council. I look forward to working with other key stakeholders to build a framework for a modern class of technician to ensure that this critical role in the workplace is more widely recognised and respected.

“I am particularly keen to ensure that young people have a better understanding of what technicians do and the rewards that training to be one brings them.”

PROFILE:
Chartered Professional



Name
Tim Chamen

Position
Director, Controlled Traffic Farming (CTF Europe) Ltd

Current Assignment:
Promotion of controlled traffic farming systems to growers and their supporting industries. Operation of a soil compaction trial at two sites for three charitable trusts.

Academic Career:
- BSc Agricultural Engineering, Cranfield University, 1968-71.
- CEng, 1985
- CEnv, 2005.

Areas of Expertise:
Soil/machine interactions in cropping systems, soil research, in-field satellite navigation and auto-steer technologies.

Tim Chamen has a degree in agricultural engineering and spent 25 years at Silsoe Research Institute (SRI) where he worked on tillage tool development and the effects of machinery compaction on soil and crop responses.

Since leaving Silsoe in 1996 he has worked independently, undertaking contracts for Simba, John Deere (UK and US), Biovelop AB, the EU and FAO. Always maintaining the thread of avoiding compaction damage to soils, he set up Controlled Traffic Farming (CTF Europe) Ltd in 2007 in response to an increasing demand for advice on the subject. CTF Europe now has five partners across Europe and has put CTF firmly on the map in a number of countries.

From 1998 to 2000 he chaired a working group on subsoil compaction within an EU Concerted Action and currently chairs a controlled traffic working group within the International Soil Tillage Research Organisation (ISTRO). He has been secretary of the Soil and Water Technical Group of the IAgrE for many years and chair of the SEM Branch since 2001. He is presently studying for a PhD on the effect of traffic management on soil conditions and crop yield.

For recreation he enjoys vegetable gardening but has to admit that his mind often strays to mechanisation opportunities within a strict bed system of production. Enjoying the sights, sounds and scents of the UK countryside using the extensive footpath network also figures high in his list of enjoyments as does the occasional bit of twitching.

Q&A

Why did you choose to become a Chartered Professional?

To be honest, I'm not sure it was a conscious decision. It didn't appear to be a requirement for progression in my career at SRI, but it seemed like a good idea to strive for it, given that I had been acquiring the necessary professional skills and expertise to make it a distinct possibility.

Little recognition, or at least no incentive for gaining chartered status, continued at SRI until my leaving in 1996, and it was only then that it bore some weight in proving my credibility and professional status when trying to gain consultancies.

This continues today, when I particularly wish to be recognised as someone who isn't just talking out of the back of his head! Wider recognition and demand for the qualification would still not go amiss and I suppose to a large extent that is up to us - making our qualification known when tendering for work and most importantly, delivering on that job in a professional manner.

How do you feel that being professionally registered helps you in your career?

Considering this at my age is probably a bit of an irrelevance but as I mentioned earlier, being a sole trader or director of a small company, it is one of the only ways that one can demonstrate that one is engaged with one's profession and that that profession has found you not to be wanting in terms of knowledge, skills and professionalism.

I suppose one has to ask oneself, would I be more likely to employ a chartered rather than a non-chartered engineer? This then also poses the question; how current is this engineer's knowledge and skills, if it was as long ago as 1985 when he/she acquired the qualification, as I did? I have to say that I might have difficulty in being sure that they are up to date, based on my own experience of little or no formal on-going assessment.

In many industries, there is an annual evaluation procedure to ensure that professionals are indeed keeping up with new developments, ideas and skills. Perhaps the IAgrE should take a lead in providing this assessment in our industry, so preventing the comfortable position of having gained chartered status without having to prove that you are still competent and up to date.

Presently, it seems only to lie with the conscience of the individual to ensure this, but perhaps as they have been recognised as CEng or CEnv, this is built into their psyche! There are of course cost implications for regular assessments of this nature, so it comes down to whether we would be willing to pay more for this service.

What discipline areas have you worked in and which discipline area are you now working in?

I think I can safely say that the majority of my career has been as an agricultural engineer with an emphasis on soil/machine interactions.

During this period there have been times when the engineering aspects have been at the forefront, when solving stability problems with the Howard Paraplow for example, researching the dynamic intricacies of a rotary digger or developing a low draught subsoiler for Petit. More demanding was the design and development of a 12 m wide gantry tractor as a research tool, involving high pressure hydrostatic drives with in-built pressure and flow sensors, telemetry data recording systems, a complete cereals harvesting unit, full and part width tillage, seeding and harvesting operations as well as a full width mounted set of rolls with adjustable pressure loading.

These disciplines impact on my work today, but more along the lines of systems engineering with emphasis on getting all components within a rotational cropping regime to work efficiently and reliably from season to season within a controlled traffic regime.

What makes your work important?

I like to think my work is delivering lower cost, higher output and more sustainable primary production systems that protect a large proportion of field soils.

We hear today of food security and the need to produce food more efficiently and with less impact on the environment. There is much research data suggesting that controlled traffic is the one technique that can deliver on this, improving the overall health and function of soils while increasing the yield of most crops.

I feel privileged to have been working in agriculture all my life - it is the one profession upon which everyone relies

every day of their lives but unfortunately probably values least! Farmers, supported by engineers have been too good at providing a more than adequate supply of food to those who can afford the modest cost of one of life's essentials

What have been your main achievements?

Two things stand out I think and I hope another is in the pipeline!

First is the development of the 12m gantry tractor that formed the basis for a field scale trial programme. This was very much a team effort but involved practically every facet of field engineering, from tillage (including ploughing) and sowing, to chemical applications and grain harvesting.

Every aspect had its challenges, including the fact that, once achieved, the project was deemed to be too close to market and funding was withdrawn! Nearly 20 years later and the technology still (sadly) cannot be deemed to be 'near market'.

Second in terms of achievement, has been bringing the technique of controlled traffic farming to the notice of most farmers in the UK. Less than three years ago, few if any had ever heard of the term, let alone know what it was about.

Now, the majority have heard of it (at least, that majority which attends technical meetings, conferences or shows) and most know its principles. This has only been achieved by keeping up a drip feed of the topic at every opportunity, which once reaching a certain level, starts to pay back by more extensive invites to come and talk on the subject - and sometimes being paid for doing so!

The Douglas Bomford Trust was key to getting to this stage, providing as it did, monies to give presentations free of charge around the country, including at Colleges and Universities. The latter giving me the opportunity to appraise the next and often very receptive generation of the benefits and environmental credentials of CTF.

I mentioned something in the pipeline, but this I should cover under the next heading

How do you see your work developing in the future?

Having spent many hours working with tractor systems prior to and at SRI, the finesse and appropriateness of a gantry tractor in delivering a practical controlled traffic farming system was a revelation!

This has been reinforced by the limitations of the conventional tractor, not only in delivering an efficient CTF system, but also just carrying out the many and diverse tasks needed in the field. This has further convinced me that the gantry tractor is a technology that has been waiting too long in the wings, and I am not alone in this view.

As an engineer, agriculturalist and environmentalist, I see my future work (perhaps even duty!) in breaking down the barriers to this technology, and they are many and much ingrained and often expressed vociferously. So I still have an uphill task. Or, maybe there's no fool like an old fool, but it's difficult to drop a long-held passion that we could easily do things better.

There's also some exciting engineering involved, so if there are any youngsters out there who want to join this new age in agricultural mechanisation, you know where you can find out more

Any tips for those newly qualifying?

Have the belief that you can achieve anything you set out to do and I hope that will include becoming a chartered professional!

It can lead you to uncomfortable places which are outside your 'comfort zone', but little is achieved without some pain along the way. There is tremendous satisfaction however in reaching your final goal, but don't expect other people to recognise the grief you have been through.

And, don't be surprised if the achievement is belittled or credited to someone else - such is life but it won't take away your fulfilment in achieving what might have appeared impossible at times.

Horticultural success at Land-based Learner of the Year Awards

PAMELA Marnie from Glenrothes, Fife was awarded 'Horticultural Learner of the Year', and Overall Runner-Up at Lantra's Land-based Learner of the Year awards.

Pamela, a Modern Apprentice in Amenity Horticulture, said "Since starting this apprenticeship I have learned so much and have found my true vocation in life. Nothing will ever stop my passion for working with plants."

Roy Daniels, Training Officer at Fife Council - Parks and Countryside, said "Since Pamela commenced her Modern Apprenticeship, she has shown exceptional enthusiasm that has motivated other co-workers. Pamela will progress rapidly in her career and we hope to enroll her on Botanical Garden and Art courses in the near future."

Pamela won two awards, Overall Runner up sponsored by Elmwood College, and 'Horticultural Learner of the Year', sponsored by Premier One (Land Services) Ltd with contributions from Horticultural Trade Association and Dundee College.

John Gillan, Director of Premier One (Land Services) Ltd, who sponsored the horticultural award, said, "As a company we invest heavily in the skills of our workforce and we see these awards as an extension of this. We believe that by sponsoring the awards we are making an investment in the future of our industry."

Richard Lochhead, the Cabinet Secretary for Rural Affairs and the Environment, said "The Lantra Land-based Learner of the Year awards recognise outstanding achievement in the environmental, land-based and aquaculture industries, and are vitally important in encouraging new Scottish talent to flourish. I'd like to congratulate each and every one of the award winners and nominees for their efforts, skills and knowledge and wish them every success in their future careers.

William Fergusson, Lantra National Director for Scotland said, "The Land-based Learner of the Year awards attract a very high calibre of candidates who have shown an interest in further developing their skills with the intent to further their career. It is vital for the future of these industries that we continue to encourage new entrants and demonstrate how employers can see bottom line benefits that highly skilled new entrants can bring to the business."

Some 140 guests, including

Pamela Marnie with Richard Lochhead

employers, training providers and members of Scottish Parliament, attended the event. Skills Development Scotland and Scottish Natural Heritage were the principal sponsors.

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MEMBERSHIP MATTERS

BRANCH REPORTS

NORTHERN IRELAND BRANCH

The David Brown tractor story

THE history and legacy of the David Brown tractor brand was the topic of a recent IAgrE meeting held at CAFRE's Greenmount Campus. Guest speaker Leslie Hutchinson shared his experiences of a lifelong interest in the subject and he provided an informed insight into how the tractor range was developed.

David Brown launched its tractor 80 years ago but the company is named after its founder who commenced the manufacturing of gears back in 1873. It still makes heavy transmissions for industrial, defence, marine and other applications. The tractor years are more closely associated with the management of the founder's grandson (Sir David Brown).

The joint venture with Ferguson

The expertise in gear and transmission production was a natural reason for the well known joint venture with Harry Ferguson in 1936 to manufacture the Ferguson Type A tractor (popularly known as the Ferguson Brown).

This revolutionary small light-weight tractor incorporated the Ferguson hydraulic draught control system for mounted implements and its converging three point linkage. Its geometry resolved the draught forces to a central point, below and forward of the rear axle to give maximum traction and stability.

The tractor was sold with its cultivation implements as a new system. In spite of its technical advantages, it was still seen by many as expensive, compared with the more basic tractors of the time, and only 1350 were sold. Today's tractor drivers would be surprised to learn that the Ferguson A's hydraulics only operated when the tractor was moving! This was acceptable as an alternative to the trailed ploughs then which still relied on a ground-wheel driven cam to raise them out of work.

The first David Brown tractor

Harry Ferguson soon moved on, to his joint venture with Ford in the US, and David Brown quickly designed and built its own tractor.

The VAK 1 was launched it at the 1939 Royal Show. It had a streamlined appearance and was based on a solid frame supporting the engine and gearbox. Although it had hydraulic lift for implements, the Ferguson patents prevented the fitting of the converging linkage arrangement or hydraulic draft control so parallel linkage and an implement depth wheel were used instead. Its dished wheel centre design, allowing a wide choice of track adjustment, was originally designed by Walter Hill and patented by David Brown.

Agricultural tractor production paused when the David Brown Company's expertise was redirected for the war effort to products such as tank transmissions and gears for the Spitfire fighter aircraft. Aircraft tug tractors were also produced for the RAF.

Tractor production resumed after World War II with the VAK 1 and the famous Cropmaster replaced it in 1947. This stylish tractor had a wind deflector to protect the driver (and passenger on a twin seat!), a 6 speed transmission and a fast road speed.

A 2 speed PTO was available soon afterwards and a high speed direct injection diesel option was introduced in 1949.

The famous David Brown VAK 1

Cropmaster production continued until 1953 (or 1956 by special order) at a time when David Brown was the third largest UK tractor manufacturer.

Performance cars

Sir David Brown was also keenly interested in performance cars having acquired both Aston Martin and Lagonda from 1947. Many of the cars, such as the DB5 which is well known for its role in the 1964 film Goldfinger, carried his DB initials.


L-R: Guest speaker Leslie Hutchinson and Harry Barr (branch treasurer)

Although David Brown sold the car operation in 1972 the most recent Aston Martin cars, such as the DB9, are still named this way.

Tractor development

The early 1950s saw the introduction the 25D and 30D tractors. The 900 was launched in 1955 followed by the 950 Implematic in 1959. The 990 (and the smaller 850) took over in 1961.

Selectamatic versions were introduced in 1965 with production running to 1971. During this time the 67hp 1200 had joined the range to cater for the demand for increased power on farms and the 91hp turbocharged 1410 followed in 1974.


DB 990 Selectamatic

Examples of innovation

A novel departure in 1956 was a small open frame rear engine tool carrier (the 2D) for specialist row crop work. It featured an onboard air compressor and pneumatic lift for implements

David Brown was a futuristic pioneer in tractor transmissions during the period and developments included a 12 speed transmission in 1966, a semi automatic transmission (Autodrive) in 1971 and Hydrashift (power shift) in 1976.

One of David Brown's engineering staff (drawing on his experience with radio controlled model boats!) also designed and

tested an electronic lift control system featuring a 4 button control box and a strain gauge for top link sensing. A patent application titled 'New improved power lift mechanism for agricultural tractors' was filed back in 1971.

New owner

Tenneco Inc. Texas (who already owned the J I Case tractor company) acquired the David Brown tractor operation in 1972.

Tractor production continued at Meltham and the 90 series was introduced in 1979. The 94 series, with a range of models from 48hp to 108 hp, was launched in 1983.

Tenneco dropped the David Brown name in favour of the Case brand in 1986 and production continued at Meltham until the factory closed in 1988. The last tractor built there was a 1594 model for the US market

The David Brown Prairie Cropmaster attracting some close attention from members

Maintaining the legacy

As well as some David Brown tractors still working on farms today, the proud tradition of innovative tractor design is kept alive by the many enthusiasts who restore and maintain their collections. This was clearly demonstrated by the immaculate range of David Brown tractors kindly brought along to the meeting by local enthusiasts.

The oldest was a 1940s VAK 1 and the most recent a 1988 commemorative edition Case IH 1394. There was also a Prairie Cropmaster, an 880 and a 990. They were the intense focus for admiration and discussion as a fitting conclusion to a most enjoyable evening.

More detailed information about David Brown tractors, including pictures and specifications, can be viewed on the David Brown Tractor Club website at *www.dbtc.co.uk*

DB 880 on display at the meeting

Terence Chambers

WEST MIDLANDS BRANCH

'Electronics in Agriculture - the next generation'

presentation by Mark Wass from IFM Electronic

MARK began by giving a brief history of the German based company which began in 1969 initially producing a range of robust proximity sensors. Over the years the range of sensors expanded to include pressure, flow, level, position, vibration, and temperature. In 1986 IFM introduced its first programmable controller and in 2009 a 3D vision sensor. The Company has strong and detailed visions, philosophies and corporate principles. I seem to recall Harry Ferguson had some similar philosophies.

Today IFM are still using flexible printed circuit boards that were an innovative feature of its first proximity switch design. The switch's electronic components are mounted on to a flexible printed circuit board resembling 35mm film. This is then rolled up and installed inside the switch.

IFM now also design and build ruggedized electric control units (ECUs) which are used extensively on mobile equipment. In fact IFM are involved with many manufacturers including Lemkin, Grimme, CNH, John Deere, Terex Finlay, Powerscreen, Dennis Eagle and Ransomes Jacobsen.

The ruggedized ECUs are designed to be able to survive vibration, temperature extremes, humidity and other hostile environments. MIG and TIG welding on vehicles can also play havoc with electronic devices. Mark explained how the main ECU can connect to remote nodes (new language for master and slaves) and how the operator needs an interface so they know what is going on. This can be supplied by display screens or virtual terminals.

As we know from a previous presentation by Mark Moore, GPS is now becoming essential on many modern tractors, all of course requiring electronic control units. There has to be a benefit in using this technology be it cost saving, reducing work/effort and operator comfort.

Mark also explained the origins of CAN-BUS and its early development history, removing much of the mystery surrounding 'CAN' along the way. A discussion took place regarding the 'languages' used in electronics, 11 bit and 29 bit systems, and the various CAN standards in use.

The future could well mean driverless tractors and already car manufacturers are working on systems that can see and measure the road ahead using 3D vision sensors. This technology can be used to control braking to avoid collisions, or as part of a reversing aid on vehicles where there is a potential for human injury.

All in all a fascinating look into the future.

Mike Sheldon

WESTERN BRANCH

AGM 10 March 2010 - held at the RAC, Cirencester including address by IAgrE incoming President Peter Leech

PRESENTATION "Linewatch - Watch out there's a Pipeline About!" talk by Kevin Bosanquet, Linewatch UK

FOLLOWING the branch AGM, the meeting heard a presentation from incoming IAgrE President Peter Leech on the current work and priorities of the Institution.

Guest speaker was Kevin Bosanquet from Linewatch UK. The purpose of Linewatch is to promote greater awareness of buried oil/gas pipelines and the safety precautions that are required when working near to them, therefore protecting personnel and the environment.

Linewatch is a joint initiative between Esso Petroleum Co Ltd, E-ON, Shell, Mainline Pipelines Ltd, BPA, Total, ConocoPhillips, Sabic, Centrica Energy, Marchwood, Wingas, Ineos, The Oil and Pipelines Agency (Government Pipelines and Storage System) and Manchester Jetline Ltd. Between them, the 14 participants account for some 5,724 km of buried oil/gas pipelines in England, Wales and Scotland.

The purpose of Linewatch, said Kevin Bosanquet is to help engineers, builders, farmers, landowners and others avoid underground gas and oil pipelines when carrying out field work.

He then outlined the resources available including a website www.linesearch.org.

Enquirers will be able to enter all enquiries onto the system and an initial search will be made against the information held. This will be in the form of a 'Zone of Interest' based on geographic information. Each Member will be able to define their own 'Zone of Interest' for the search to be made against, this varies from 25 metres to 250 metres either side of their apparatus.

If the proposed works are outside the 'Zones of Interest' an automatic response will be sent out to the enquirer advising them of this fact, there is also a print screen facility.

If, however, the work is within a 'Zone of Interest' then further details will be requested. The enquirer will be advised of the correct contact details and the additional information required, this will be dealt with directly by the Member concerned who will undertake the detailed search and will then be responsible for making the necessary responses to the enquirer.

Responses made to enquiries entered into Linesearch.org will only be valid for 28 days from the date they were originally entered. If the works are not completed within that time frame an additional search will have to be undertaken to confirm that there has been no changes made to the apparatus designations since the original search was undertaken.

Above: Kevin Bosanquet of Linewatch UK, below Western Region Members browse the Linewatch literature following the meeting

WEST MIDLANDS BRANCH

GPS - Twenty years on
Speaker Dr Mark Moore, AGCO

MARK Moore is internationally recognised for his research in Precision Farming and has been involved in Yield Crop Mapping and GPS from the outset.

Last year he was awarded the Michael Dwyer Memorial Prize 2008 in recognition of his research work.

Firstly he recapped on the early days of GPS which became useable to farmers in 1991. Then it not only relied on satellites but required reference stations and VHF and GPS receiver on the tractor.

By 1997 a greater degree of accuracy was being obtained with GPS as differential correction was now in use. In 1996 AGCO launched their Fieldstar System in Europe and a year later in North America. Some important sites and farms were involved with the system including Silsoe Research Institute and Silsoe College (now of course Cranfield University).

The 2nd May 2000 was a major step forward when Selective Availability was discontinued which allowed users to receive a non-degraded signal. What had previously been a 100 metre error, reduced to 15 metres virtually overnight. Accuracy was further improved to below one metre and by 2010, some systems could achieve a two centimetre accuracy.

Mark talked about its uses in farming such as:

- Improved application of products - weed control, fertiliser applications, fungicide applications
- Machine control - auto steer systems, possibly driverless vehicles in the future
- Management tool - this is proving to be very useful in immediately updating documentation, application records, traceability etc.
- Field Scouting - for producing weed maps and soil sampling

Mark concluded his presentation by showing how the technology is being used worldwide especially in Brazil and Australia and it is here to stay.

Thanks are due to Mark for a thoroughly interesting presentation.

Mike Sheldon

YORKSHIRE BRANCH
Presentation of 2010 IVEL award


Roundhouse

THE Yorkshire branch recently carried out a presentation of the 2010 IVEL award to Roundhouse Building Solutions Ltd.

Roundhouse kindly agreed to show a few representatives of the branch around one of the roundhouse facilities and the Branch officially presented them with their award.

The building won the IVEL award due to its unique shape which has significant environmental benefits on two fronts - from a human aesthetic environmental point of view when viewed at a distance, and internally from an animal environmental point of view in that the building arguably provides the best housed environment for farm animals (for a full report on the Roundhouse see *Landwards, Spring 2010)*.

Pictured above, left to right are Jeff Simpson (Roundhouse), Chris Gaunt, Peter Chaplin, Pat Inwoo, presenting the award Yorkshire Branch Secretary, Gordon Williamson and Chris Shaw.

LONG SERVICE CERTIFICATE
John Foxwell, FIAgrE

PLEASE thank the President for sending me the 50 year certificate of membership of the Institution which began in 1960 when I was in charge of Tractor Engineering for Ford at Dagenham responsible for the Fordson Major and Dexta Tractors.

Two years later I was transferred to the USA and in 1964 was made Chief Engineer of Ford Tractor Engineering Worldwide, for both Agricultural and Industrial tractors so I was not able to fill any posts with the Institution. However, I have always found time to retain my membership over all these years and have written several articles for *Landwards* as well as historical once for old Tractor collectors.

I miss the NIAE and especially Dave Manby who was a good friend of mine, and the British Standard tests. In the fifties tests were carried out on four surfaces by Dave; concrete; grassland; damp stubble and cultivated loam with the Major, Dexta, Nuffield and Ferguson tractors. These are the only ones to my knowledge to carry them out. Perhaps one of these tests could be published in *Landwards* for the benefit of all the new young members now joining?

It was a shame that the British standard tests adopted, with the Nebraska people, to only use the concrete surface for the OECD tests. Dave was not for it. The current tests are far too complicated for a farmer to fathom out to get performance out of his tractor.

I have tried several times to get the Nebraska people to use dynamometors on each driven wheel to check the power and then estimate what the vehicle will do in the field. Think how much fuel would have been saved over al these years. Let's get the NIAE back.

I am now 92 and read as many tractor magazines that I can find from the other Institutions that I belong to. *Landwards* is now in colour and I look forward to its delivery, I wish it was six times a year instead of four. I have also taken out a patent for a zero-compaction tractor which was described in the last issue of Landwards before the colour version.

I sincerely trust that the Institution will grow in membership and be very successful.

Membership changes

Admissions

A warm welcome to the following new members:

Member

Hawthorn W D (Surrey)

Associate Member

Bhadra S (India)

Associate Members also EC registered as Eng Tech

Baily T (Lincs)
Baldry C J (Suffolk)
Barker N (Lincs)
Burnett G (Dumfries & Galloway)
Blacklock K E (Dumfries & Galloway)
Bowes A G (Norfolk)
Brown G H (Leics)
Cable N P (Suffolk)
Chilton E J (Yorks)
Clements I J (Suffolk)
Conchar R (Dumfries & Galloway)
Coupland D S (Lincs)
Crookes M J (Leics)
Deacon G H (Leics)
Dobson A P (Berks)
Dominick J (West Sussex)
Evans K P (Cambs)
Evans N (Wilts)
Forsyth R J (Notts)
Garvie M E J (Warks)
Gault J (Dumfries & Galloway)
Geary A K (West Sussex)
Gowing J (Norfolk)
Gowing J (Suffolk)
Grimwood N G (Suffolk)
Harris D C (Herefordshire)
Hayne J E (Wilts)
Heard G I (Devon)
Henderson J A (Northumberland)
Hickin S C (Hants)
Hopkins J W (Devon)
Hunter M R (Cumbria)
Hurd W J H (Somerset)
Izod C E (Oxon)
Johnson C P (Lincs)
Knatchbull J (Somerset)
Lamb M (Northumberland)
Legg M R (Glos)
Lockwood S A (Suffolk)
Love J H (Suffolk)
Lummis E (Suffolk)
Manders M (Lincs)
Marlow D T (Leics)
Marshall G J (Northants)
McHarg D A R (Dumfries & Galloway)
McKerrow K A (Dumfries & Galloway)
Mear S (Notts)
Mein D (Northumberland)
Morse G (Wilts)
Oakes A J (Norfolk)
Paterson R (North Lanarkshire)
Pearse R J (Devon)
Pearson N (Lincs)
Penny B (Aberdeenshire)
Pettitt K P (Suffolk)
Purvis W A (Berwickshire)
Roberts J J (Yorks)
Roe M C (Suffolk)
Sherwood D P (Norfolk)
Stephenson P (Yorks)
Summers L J (Devon)
Tayler P M (Somerset)
Taylor D R (Norfolk)
Todd R W (Cumbria)
Trickey D (Dorset)
Ward M J (Hants)
Watson A P (Cumbria)
West N (Somerset)
Williams J M (Devon)
Wilson R (Lanarkshire)
Worthington I D (Northants)

Associate

Dingle A (Scotland)
Williams B J (Yorkshire)

Student

Barony College

Adams L
Bell M
Biagi J
Blackwood J
Colebrook S P
Duff J
Gilbert G R
Glendinning L D
Howatson L A
Kirk T
Kirkpatrick I W H
Macrae C J
McIlherson W
McMeeken P
Miller D K
Mitchell J W
Morgan R
Ramage T
Sloan T A
Smith S
Stronach M G A
Warwick C J

Brooksby Melton College

Anderson S
Body S N
Bridle D
Broster L
Buckingham A
Butts D
Carter C
Chapman S O
Clarkson G
Cockburn B
Collins D
Curle R
Dixon B
Downing C A
Drewnicki E
Foye C
Gilder C
Gregory B
Hawkins S
Hebditch J
Horsfild S
Hyslop J A J
Jaggard L
Kent M
Kershaw H
Knox D
Loane M
McArthur B S
Mayhew S
Miller A
Miller B
Oram G
Parrott C
Rattray D
Reid M H
Spink D
Timms S
Ward J
Williams L

Coleg Sir Gar

Bayliss M
Brown J N
Court D
Dale H
Davies A
Davies C H
Davies E
Evans C H
Evans G
Griffiths W D
Hamer G M
Heath D G
Hilde R W
Jones E
Jones T I E
Lewis D
McEwen B C
Phillips J J B
Sorran S V
Walton S G
Watkins D
Watkins R

Cranfield University

Parsons S
Quraishi M Z

Myerscough College

Ashton B
Barker F D C
Brown M K
Bush M
Carey J E
Charnley J W D
Clement W
Edmondson J
GardnerT J
Gilks D
Hargreaves D
Iredale S K
Kay H
Mitchell M K
Mitchell N
Murphy S R
Parker A J
Pilkington P O
Rushton-Cape T
Spencer S J
Unsworth R W
Wild N J S

Ulster College

Baird D J

Deaths

Morgan B A (Bedfordshire)
Omoaka S (London)

Transfers

Fellow

Watts C W (Bedfordshire)

Associate Member

Bradley J J (Co.Durham)
Herbert D T (Caerphilly)

Associate

Hopkins E (Cardiff)

Academic members

Askham Bryan College
Askham Bryan
York
YO23 3FR

Barony College
Parkgate
Dumfries, DG1 3NE

Bicton College
East Budleigh
Budleigh Salterton
Devon
EX9 7BY

Brooksby Melton College
Asfordby Road
Melton Mowbray
Leics
LE13 0HJ

Coleg sir Gar
Pibwrlwyd Campus
Pibwrlwyd
Carmarthen
SA31 2NH

Cranfield University
Cranfield
Bedfordshire
MK43 0AL

Greenmount Campus
CAFRE
22 Greenmount Road
Antrim
Northern Ireland
BT41 4PU

Harper Adams University College
Newport
Shropshire
TF10 8NB

Long service certificates

Name	*Grade*	*Date of anniversay*
60 years		
Douglas McDonald **Walker**	IEng, FIAgrE	10 May 2010
50 years		
William John **Foxwell**	FIAgrE	12 Apr 2010
35 years		
Alan **Plom**	MIAgrE	22 Apr 2010
John Nicholas **Tofts**	IEng, MIAgre	28 Apr 2010
Christopher Frank Howard **Bishop**	CEng, FIAgrE	29 Apr 2010
Michael John **O'Dogherty**	CEng, FIAgrE	29 Apr 2010
Morgan James **Milne**	IEng, MIAgrE	29 Apr 2010
Charles John **Bevan**	MIAgrE	29 Apr 2010
Brian Christopher **Stenning**	FIAgrE	13 May 2010
Cecil James **Bracey**	FIAgrE	13 May 2010
Paul **Austin**	AIAgrE	21 May 2010
Alan James Harold **McKenzie**	IMIAgrE	10 Jun 2010
25 years		
Norman Frank **Ley**	CEng, FIAgrE	11 Apr 2010
Christopher William **Day**	AMIAgrE	28 Apr 2010
Richard Roy **Taylor**	AMIAgrE	23 May 2010
Stephen **Peirson**	CEng, MIAgrE	1 Jun 2010
Graham John **Field**	AMIAgrE	1 Jun 2010
John Trevelyn **Loud**	IEng, MIAgrE	1 Jun 2010
Brennan Peter **Weston**	IEng MIAgrE	1 Jun 2010
Philip Noel **Maltby**	EngTech, MIAgrE	1 Jun 2010
Martin Robert **Oldham**	AMIAgrE	1 Jun 2010
Mark Simon **Tatlow**	AMIAgrE	6 Jun 2010
Richard Thomas **Roadnight**	MIAgrE	6 Jun 2010
Barry Winston **Sheppard**	MIAgrE	20 Jun 2010
Raymond Charles **Piper**	AIAgrE	20 Jun 2010
Robet Garfield **Cole**	MIAgrE	20 Jun 2010

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
Stoneleigh Park
Kenilworth Warwickshire
CV8 2LS

Garford Farm Machinery Ltd
Hards Lane
Frognall
Deeping St James
Peterborough
PE6 8RR

Huntaway Consulting
Ivy Cottage
Torlundy
Fort William
Inverness-shire
PH33 6SW

John Deere Ltd
Harby Road
Langar
Nottinghamshire NG13 9HT

Law-Denis Engineering Ltd
Millstream Works
Station Road
Wickwar
Wotton-under-Edge
Gloucestershire GL12 8NB

Shelbourne Reynolds
Shepherds Grove Ind. Est.
Stanton
Bury St Edmunds
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
Abingdon
Oxfordshire
OX14 2JD

Academic members continued

Institute of Technology Tralee
Clash
Tralee
Co Kerry
Ireland

Myerscough College
Myerscough Hall
Bilsborrow
Preston
Lancashire PR7 0RY

Oatridge Agricultural College
Ecclesmachan
Broxburn
West Lothian
EH52 6NH

Pallaskenry Agricultural College
Co Limerick
Ireland

Plumpton College
Ditchling Road
Lewes
East Sussex
BN7 3AE

Reaseheath College
Reaseheath
Nantwich
Cheshire
CW5 6DF

Royal Agricultural College
Cirencester
Gloucester
GL7 6JS

Scottish Agricultural College
SAC Ayr Campus
Auchincruive Estate
Ayr
KA6 5HW

Sparsholt College
Sparsholt
Winchester
Hampshire
SO21 2NF

Willowdene Training Ltd
Chorley
Bridgnorth
Shropshire
WV16 6PP

Wiltshire College - Lackham
Lacock
Chippenham
Wiltshire
SN15 2NY

We want to hear from members.

Send branch reports or correspondence to:

The Editor
25A New Street, Salisbury,
Wiltshire,
SP1 2PH.
Email:
chris@nelsonpublishing.co.uk

Or the IAgrE Communications Officer Marion King on
comms@iagre.org

EVENTS

IAgrE Branch Meetings and Events

Southern Branch
Thursday 09 September 2010 starting 10.30
SOUTHERN BRANCH SUMMER VISIT
Venue: Barfoots of Botley, Sefter Farm, Pagham Road, Nr Bognor Regis, W.Sussex PO21 3PX
a.m. Barfoots of Botley - new developments including the anaerobic digester p.m. tbc Denis Welstead
Email: djwelstead@btinternet.com

East Anglia Branch
Tues 26 October 2010 starting 1900
NH2 AND ENERGY INDEPENDENT FARMING
Speaker: Mark Howell, New Holland
Venue: Diss Golf CLub, Stuston Common, Diss, Norfolk IP21 4AA
Mark Howell is Harvest Marketing Support Specialist for Forage Harvesters, Balers and NH2, New Holland. The Energy independent farm concept, presented by New Holland at the beginning of 2009, aims to make farms free of external energy suppliers. It involves the farmer producing his own supply of compressed hydrogen. This is used to produce electricity to pwer the New Holland NH2 tractor using fuel cells. For further information please contact the Branch Secretary: Michael Bennett
Tel: 01760 725990 Email: mike@bennettcropstorage.co.uk

Other Events:

Tuesday 15 June 2010 starting 6pm
Association for Project Safety
ACCIDENT INVESTIGATION IN CONSTRUCTION
Speaker: Dr Mark Cooper, Robens Institute, University of Surrey
Venue: Novotel Hotel (Man West) M60 Junc 13 Worsley Brow, Worsley, Manchester M28 2YA
Dr Cooper will present an in depth look at accident investigation philosophy and will draw on his own extensive experience of construction and workplace accidents to explain clearly the implications and what can be done. To book please contact Andy Newbold (regional chair).
Tel: 0845 4900 143 Email: andy@newmac.org.uk

17 June 2010 starting 0930
The Safety and Reliability Society
THE LANGUAGE OF SAFETY WORKSHOP
Venue: Royal Institution of Naval Architects, 10 Upper Belgrave Street, London SW1X 8BQ
Safety risks can be evaluated in a number of ways, some techniques are simple others require specialist knowledge. The outputs from assessments need to be acted upon to maintain or improve safety levels. We sometimes fail to communicate with well and this event will consider not the language we use but how we improve our communications to increase effectiveness and overall safety. Managers and practitioners will benefit from attending. Book online.
Web: www.sars.org.uk/conf.htm

18 June 2010 to 20 Jun 2010
East of England Agricultural Society
EAST OF ENGLAND SHOW
Venue: East of England Showground, Peterborough PE2 6XE
Tel: 01733 234451 Email: info@eastofengland.org.uk
Web: www.eastofengland.org.uk/EoE_Show/index.html.html

Thursday 15 July 2010 starting 10.00
AEA
COLLEGES DAY: IT USED TO WORK! HOW DO WE RE-CONNECT COLLEGES WITH INDUSTRY?
Venue: Cranfield University
There has been a disconnect between colleges and both manufacturers and dealers in recent years. To try to arrest this trend and reconnect, the AEA is holding a FREE one-day Colleges Day. The aims are to establish the demands and requirements of the industry; to establish up to date capabilities and needs of the Colleges; and, to look at the funding issues. For further information please contact the AEA.
Tel: 01733 207601 Email: ab@aea.uk.com Web: www.aea.uk.com

Thurs 15 July 2010 starting 1630
IAgrE
NEW CONCEPTS FOR THE FUTURE OF AGRICULTURAL ENGINEERING
Speaker: Dr Abdul Mounem Mouazen
Venue: Cranfield University
The focus will be on the application of new digital technology to optimize field operations. The vision is to combine cutting-edge sensor and system control technology with predictive modelling of the soil-plant-water system at field scales. This might be described as 'second wave' precision agriculture, with activities in agricultural engineering, geographical information management and soil and land management. This is the first in a series of IAgrE events which will look forward at how new technologies will be aplied to our sector. This first one is being run jointly with Cranfield University and attendance is FREE. To register please contact the IAgrE secretariat.
Tel: 01234 750876 Email: secretary@iagre.org
Web: www.iagre.org

September 2010 -tbc
ICE in collab with Oxfam GB and WaterAid
INTEGRATED WATER RESOURCES MANAGEMENT: MOVING FROM THEORY TO PRACTICE (EVENT 4 OF 4)
Venue: Institute of Civil Engineers One Great George Street London SW1P 3AA
The aim of these Integrated Water Resources Management (IWRM) events is to highlight current and future risk to regional and local water resources. They will demonstrate how WASH agencies can operationalise water resource and land management and engage in a practical mannner. There will be series of four quarterly workshops: 1) (Dec09) Complex risk: The future of regional and local water resource and land management; 2) (March10 tbc) Recognizing and respecting community-led adaptation; 3) (June10 tbc) Practical IWRM: The role of communities in action research; 4) (Sept10 tbc) Moving from practice to policy: The role of communities in effecting change. Contact: Daphne Guthrie
Email: daphne.guthrie@ice.org.uk
Web: www.ice.org.uk/conferences_events/newsevents_events.asp

06 September 2010 to 08 September 2010
EurAgEng
AGENG 2010 - TOWARDS ENVIRONMENTAL TECHNOLOGIES INTERNATIONAL CONFERENCE ON AGRICULTURAL ENGINEERING
Venue: Clermont-Ferrand, France

Invited speakers will present some public policies impacting EurAgEng: Rural Development policy, CAP, ETAP and state of art on hot topics. AgEng2010 CF will be preceded by 2 technical symposiums organised in parallel on 3&4 Sept: Symposium ECOTECHS 2010 "Eco-design and Develop of methodologies for Eco-assessment and Eco-innovation of Spreading Equip". Symposium "Robotics and Agri/Environ" with support from Int'l Advanced Robotics Prog (IARP) Cost: 480 Euro. for early registration and EurAgEng members 530 Euro for non-members. 1st Announcement available to download at www.ageng 2010.org
Web: www.ageng2010.org

06 September 2010
Joint Nature Conservation Committee
THE CONSERVATION & MANAGEMENT OF RIVERS CONFERENCE 2010: 20 YEARS ON
Venue: University of York
A conference to bring together all those with an interest in achieveing greater integration of conservaiton within the management of river systems. A look back at river conservation and management over the last 20 years, share experience and use the lessons of the past to look into the future. A forum to: discuss the theory and practice of river conservation; describe progress in different parts of the world; and to define appropriate strategies for the future. For more info contact the Joint Nature Conservation Committee.
Email: riversconference2010@jncc.gov.uk Web: www.njcc.gov.uk

08 September 2010
Forestry Engineering Group
AUTUMN SYMPOSIUM - 'PLANT NOW AND USE SUSTAINABLY'
Venue: University of Cumbria, Newton Rigg Campus at Penrith
The theme of the Symposium is 'Plant now and use sustainably' - one of the key recommendations of the independent report published in late 2009 on forestry's contribution to mitigating climate change, produced by Professor Sir David Read and a panel of leading forestry and climate change experts . The Symposium will follow the successful formula of previous events, with the morning sessions focussing on a specific topic, which this year is carbon aspects of forestry and wood products, with the afternoon sessions addressing a selection of other topical and practical issues, including modified wood products, the performance of forest roads in winter, harvester-mounted acoustic tools for timber assessment and an update on IAgrE communications.
Tel: 07900 607785 Email: bruce.hamilton@forestry.gsi.gov.uk

06 October 2010
EBEC
EBEC 2010 - EUROPEAN BIOENERGY EXPO & CONFERENCE
Venue: Stoneleigh ParkNear Coventry, Warwickshire CV8 2LZ
EBEC 2010 (European Bioenergy Expo & Conference) is the largest dedicated Bioenergy Expo in the UK. Now in its 5th year EBEC 2010 will be bigger and better than ever before, and will focus on: biogas; biomass/wood energy; biodiesel and energy from waste. For further information or to register please visit EBEC website.
Web: www.ebec.co.uk

If anyone is interested in car sharing to any of these events you can liaise with fellow members by using the discussion forum in the Members Only section of the IAgrE website - www.iagre.org/memaccess.php

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

EVENTS OF INTEREST

JUNE 2010

18-20 Three Counties Show, Malvern
24-27 Royal Highland Show, Edinburgh

JULY 2010

3-4 Smallholders Show, South of England Showground, Ardingly
13-15 Great Yorkshire Show
16-18 Kent County Show
19-22 Royal Welsh Show
23-25 CLA Game Fair, Alcester, Warwickshire
27-29 New Forest & Hampshire Show

AUGUST 2010

4 North Devon Show
4-5 Bakewell Show
10-11 Anglesey Show
17-19 Pembrokeshire Show
26 Bucks County Show

SEPTEMBER 2010

7-9 IOG SALTEX 2010, Windsor Racecourse
8 Dairy Event & Livestock Show, NEC
15 Tillage 2010, Leverton Farms, Lincoln
18-19 Royal Berkshire Show
20-22 GLEE 2010, Birmingham NEC

OCTOBER 2010

2-3 South of England Autumn Show & Game Fair, South of England Centre, Ardingly
6 Dairy Show, Bath & West Showground
7 Tillage 2010, Berghill Farms, Bechin
10 East of England Autumn Show
23-24 Countryside Live, Harrogate

NOVEMBER 2010

3-4 IOG Scotsturf, Edinburgh
17 AgriScot 2010, Royal Highland Centre
29-30 Royal Welsh Winter Fair

DECEMBER 2010

3-4 AgriLIVE, Smithfield

LANDWARDS™ EVENTS

2010 - 2011

High technology for Agriculture – The next phase

A Series of Forward Looking Events from IAgrE

During 2010 and 2011, IAgrE is planning to put on a series of events that will be looking forward at how new technologies will be applied in our sector.

These events, in partnership with Cranfield University and Harper Adams University College amongst others, will cover subjects including:

- **The use of sensors**
- **Smart farming (including robotics and precision farming)**
- **Carbon sequestration.**

The first event, scheduled for July 15th 2010 at Cranfield University will be a seminar presented by Dr Abdul Mounem Mouazen, (Senior Lecturer in Agricultural and Environmental Engineering in the Natural Resources Department of the Cranfield University School of Applied Sciences) *on New Concepts for the Future of Agricultural Engineering*. The focus of this event will be on the application of new digital technology to optimize field operations. The vision is to combine cutting-edge sensor and system control technology with predictive modeling of the soil-plant-water system at field scales. This might be described as 'second wave' precision agriculture with activities in agricultural engineering, geographical information management and soil and land management.

The seminar, to be held in the Vincent Building, will commence at 16:30 and will be followed by light refreshments. Please notify Sylvia (sylvia@iagre.org) if you plan to attend this free event.

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.

IAgrE is able to offer the following professional qualifications to its suitably qualified and experienced members:

- ***Engineering Technician (EngTech)***
- ***Incorporated Engineer (IEng)***
- ***Chartered Engineer (CEng)***
- ***Chartered Environmentalist (CEnv)***

IAgrE also administers the LTA scheme on behalf of our industry.

LANDWARDS™ 2010/11

New Concepts for the Future of Agricultural Engineering

July 15th 2010

Venue:

Vincent Building

Cranfield University

Time: 16:30

For further information, please contact:

IAgrE Secretariat:
Sylvia@iagre.org
T: 01234 750876
F: 01234 751319

IAgrE

LTA

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


AGRICULTURE


FORESTRY


ENVIRONMENT


AMENITY


HORTICULTURE

www.iagre.org