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NATIONAL CENTRE FOR PRECISION FARMING

House of Commons launch for new Harper Adams facility

LANDWARDS 2012 CONFERENCE

Events details and speaker information

IAgrE Professional Journal www.iagre.org Volume 67, Number 1 Spring 2012

Biosystems Engineering

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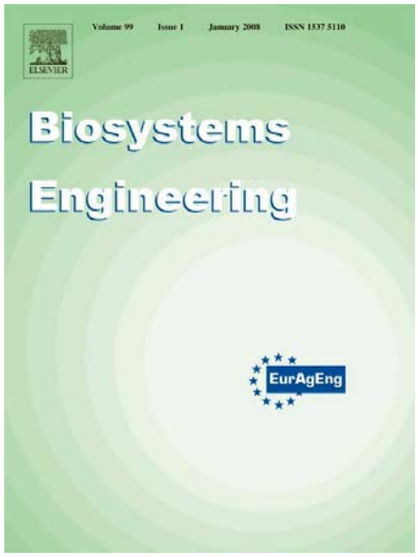

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The Managing Editor of ***Biosystems Engineering***, ***Dr Steve Parkin***, has kindly summarised some of the papers published in the last three issues which he thinks may be of interest to IAgrE members

Biosystems Engineering

Volume 110, Issue 3, November 2011, Pages 247-252

Design and testing of an intra-row mechanical weeding machine for maize

Cordill, T.E. Grift, FL Smidth, Spokane, WA, USA

Department of Agricultural and Biological Engineering, University of Illinois, USA

The object was to non-specifically remove weed plants within the row by enabling dual tine carriers to engage the soil whilst circumventing the maize stalks. The maize stalks were distinguished from the weeds and maize leaves by utilising 1) the typical vertical quasi-cylindrical stalk of the maize plant, 2) the limited range of maize stalk diameters, and 3) by assuming constant plant spacing. To assess the performance of the machine, a video was taken during field plot experiments. This allowed determination of the number of plants that were "fatally damaged" after inadvertently being pushed over by the implement. This was assumed to cause the plant to die, or "minimally damaged" where the implement merely touched the plant, when the plant was assumed to survive. Experiments were carried out using three arrangements being 1) three rows without weeds, 2) three rows with broadleaf weeds (simulated by planting soybean) and 3) three rows with grassy weeds. The percentage of plants that were fatally damaged was 8.8%, 23.7%, and 23.7% in cases 1, 2, 3 respectively.

Volume 110, Issue 4, December 2011, Pages 363-377

A methodology for model-based greenhouse design: Part 1, A greenhouse climate model for a broad range of designs and climates

B.H.E. Vanthoor, C. Stanghellini, E.J. van Henten, P.H.B. de Visser

With the aim of developing a model-based method to design greenhouses for a broad range of climatic and economic conditions, a greenhouse climate model has been developed and validated. This model describes the effects of the outdoor climate and greenhouse design on the indoor greenhouse climate. For use in a greenhouse design method that focused on the optimisation of a set of design elements, the model should fulfil the following three requirements: 1) predict the temperature, vapour pressure and CO2 concentration of the greenhouse air, with sufficient accuracy for a wide variety of greenhouse designs under varying climate conditions, 2) include the commonly used greenhouse construction parameters and climate conditioning equipment, and 3) consist of a set of first order differential equations to allow the use of ordinary differential equation solvers. The model is considered to be sufficiently accurate and sufficiently generic to be used for developing a model-based greenhouse design method.

Volume 111, Issue 1, January 2012, Pages 57-63

Performance of an agricultural tractor fitted with rubber tracks

G. Molari, L. Bellentani, A. Guarnieri, M. Walker, E. Sedoni

Department of Agricultural Economics and Engineering, Bologna University, Italy, CNH Italia S.p.a., 41100 Modena, Italy

Recently, rubber belt tracks have become a notable solution for agricultural tractors, because they unite tractive performance and lower soil compaction with a better trafficability. Triangular rubber belt systems have been developed to replace the conventional wheeled configuration found on combine harvesters, and these can also be used on tractors. The purpose of this paper is to evaluate the performance of these solutions on a standard agricultural tractor. In particular, a tractor equipped with standard tyres, water-ballasted tyres, half-tracks, and fully-tracked was analysed. Drawbar power tests on asphalt and on soil were carried out, and compaction tests were performed on soil. The results show a better tractive efficiency and a reduced soil compaction for the solution with four rubber tracks with respect to the others. In addition, a reduction of the tractive efficiency with the increasing of the slip was highlighted in the half-track solution caused by an unfavourable weight distribution on the axles.

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Landwards
Agriculture • Horticulture • Forestry • Environment • Amenity

VOLUME 67 Number 1 2012

THIS ISSUE

EDITORIAL

Joined-up thinking

WE all have favourite sayings, particularly in business, which when analysed can seem completely barmy!

Utterances like 'wash its face'; 'run it up the flagpole'; 'low-hanging fruit'; 'blue-sky thinking'; 'singing from the same hymn sheet', 'managing expectations', 'bringing our A-game' . . and my particular favourite ' . . 'putting lipstick on a pig'! - really mean nothing.

We all use them when common English words or phrases would surely do just as well.

However, the phrase 'joined-up thinking' is a description that can really do what it says on the tin *(there, cliche-itis gets you in the end!).*

The recent launch of the National Centre for Precision Farming to be based at Harper Adams is the response for the need for 'joined-up thinking' in the field of agricultural engineering where fast-moving innovations in manufacturing, mechatronics, hydraulics, data management and so on must be brought together.

None of these specialised fields can operate in isolation, they have to be applied to the process of providing methods for working smarter and faster if the growing world population is to be fed over the coming decades.

The views expressed in Landwards editorial are those of the Editor, and do not necessarily reflect those of the Institution

Addressing the recent NFU Conference, Peter Kendall said, "We have to get innovative solutions out of the lab and into the field". He is right, scientists often work on finding solutions to specific issues, the trick is to then apply them to practical applications across a much wider field - and that needs coordination and vision.

All of which is also a very good reason to attend the IAgrE Conference at Stoneleigh on 10 May which is taking a different approach this year by asking delegates to consider how they would counteract the effects of "The Perfect Storm" of food shortages, water supply and energy resources.

If ever there is a need for 'joined-up thinking' it is in solving this challenge on which humanity itself depends - and as such, specialist bodies including IAgrE have a vital role to play in future planning.

Look forward to seeing you there!

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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***

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New Head of International at Engineering Council

The Engineering Council has announced the appointment of Katy Turff as Head of International.

Katy joins the organisation from the Institution of Engineering and Technology (IET) where she worked for nine years, most recently as Programme Manager, delivering the Institution's strategic objectives relating to member engagement.

Katy will be building on the work in progress to shift the emphasis of international agreements from academic to competence-based standards, to ensure that all Engineering Council registrants can benefit from international recognition, whether they have achieved their professional qualifications through a standard or individual route.

"Engineering is a global profession so it follows that international recognition of our professional qualifications is vital for engineers, technicians, their employers and clients," said Katy. "There are still a lot of barriers to international mobility and it makes sense for the Engineering Council to take the lead in tackling these on behalf of, and in collaboration with, the professional engineering institutions (PEIs). As many PEIs look to grow membership and registration of members outside the UK we must also be ready to exploit the opportunities this presents to increase awareness and recognition of UK-SPEC, whilst ensuring that standards are maintained."

Katy replaces Dr Jim Birch, who has retired after eleven years in the role. During this time Dr Birch worked successfully with the PEIs to adopt a collaborative approach to international issues.

Ivel Award for Fuel-Guard

IAgrE sponsored honour presented at LAMMA show

COUNTY Durham-based Fuel-Guard, scooped the Ivel Award for its Fuel Decontaminator at this year's LAMMA.

The Ivel Award award, sponsored by IAgrE, is given for the product or innovation which has the most positive impact on the environment.

The Fuel Decontaminator is a simple, one step unit that will remove up to 95% of solid contaminants and 99.9% visible water, including emulsified water that may be present in the fuel. Using an entirely new, unique, filter design, the system will eliminate the problem of water and particulate contamination in fuel.

No replacement of filter elements or cartridges are required, as the Fuel Decontaminator performs this function with a reusable lifetime filter element. It can be easily cleaned without the use of tools when blocked, by removing and gently washing the element with clean fuel.

Judged against 13 other entries, the judging panel thought that the Fuel Decontaminator product range offered a simple, cost effective addition to any diesel engine fuel line-up to remove water and foreign matter from the fuel. The range covers engines up to 1200 hp and by demonstration offered operators a verifiable monitoring approach, simple to understand and operate, thus ensuring contaminants were easily removed. The product offers a major contribution to ensuring efficient fuel combustion that benefits the whole environment.

L-R: Ian Currie, managing director of Fuel-Guard is presented with the Ivel Award by Christopher Whetnall, CEO of IAgrE

Ian Currie, managing director of Fuel Guard said, "We were thoroughly interviewed during the show by a panel of senior engineers. This was a difficult award to win and we are pleased that the judges recognised and understood the major environmental benefits this unique cleanable filter system can offer."

Students also awarded by IAgrE

TWO students from Coleg Sir Gâr's agricultural campus at Gelli Aur Coleg carried off IAgrE's student and safety awards, also presented at LAMMA.

First introduced last year, the safety award is presented to a student whose project is aimed at improving a machine or process and has demonstrated a sound approach to health and safety. This year's award went to Gareth Hamer for his excellent project developing a power assisted sheep turnover crate.

Alan Plom a member of the judging panel commented "Gareth adopted a sound risk-assessment based approach to design. The novel element of this idea is that it is solar powered and I believe worthy of including in the Health & Safety Executive's Gallery of Manual Handling Solutions."

Joshua Brown was awarded the IAgrE Student Project Award for his slurry pipe cleaner design. This award has been introduced to encourage and recognise innovation and originality by students of agricultural engineering and land-based technology. Projects submitted for this award must demonstrate the benefits of practical project work undertaken as part of their courses. For a project to be a winner it must also be innovative and demonstrate commercial potential.

"The increasing necessity for farmers to become more aware of their neighbours' environmental concerns, not to mention the need to avoid cross contamination, means that agricultural machines, particularly those involved in waste disposal, need to be kept clean," said Richard Robinson an award judge.

"Joshua Brown's project addresses this requirement and, with development, should be a very useful aid to redressing the 'Dirty Farmer' image," added Richard.

The Awards Panel were particularly impressed with the way in which Joshua had defined a real problem, defined a possible solution and built and tested a prototype of his design. It was recognised that this was an area that had received little attention in the past and where there was scope to make a real difference in practical operation

Joshua Brown left, winner of the IAgrE Student Project Award and Gareth Hamer right winner of the IAgrE Safety Award

National Centre for Precision Farming launched

MORE than 140 guests, including MPs, engineering and farming experts, and research staff, attended the launch of the National Centre for Precision Farming (NCPF) at the House of Commons on Wednesday (February 29).

The launch took place during a reception in the Terrace Pavilion, overlooking the Thames, hosted by Julian Sturdy MP, an alumnus of Harper Adams University College. Harper Adams is home to the NCPF, and will facilitate the knowledge exchange required to bring "smart" agricultural machinery into wider and more productive use in UK, and global, farming.

Principal Dr David Llewellyn explained, "The agricultural engineering sector is moving quickly in areas of advanced manufacturing, mechatronics, hydraulics, data management, and in exploring novel techniques, but these efforts need co-ordination, routes to expertise in research and development and, dare I say it, a greater understanding amongst those who have to use increasingly smart machinery that might challenge accepted production methods.

"That is where the National Centre for Precision Farming hopes to make a difference. By bringing together representatives of the agricultural engineering sector, the farming community and academics from a variety of disciplines and institutions, including our own crop and livestock scientists, the centre will aim to stimulate debate, innovation and understanding as we all make the transition to smarter farming, building on existing knowledge and ensure that we have a means to collaborate on strategic issues.

Dr Llewellyn added, "As Peter Kendall said at last week's NFU Conference, 'we want to get innovative solutions out to the field from the lab.'. We don't want it to be a talking shop, but rather a place where agricultural engineers and famers can be brought together to actively develop expertise in the use of advanced technologies."

Mr Sturdy, MP for York Outer, opened his speech by saying that there are three big issues facing the UK, and rest of the world, over the next few decades: food security, water security and energy security, and that they were interlinked.

"If we are going to tackle these issues we really have to innovate. Innovation is the key that's why I am delighted about today's event, which is all about innovation, and I am glad to be a part of that. The UK is built on the back of innovation and we have to become the world leaders in this. I think that what Harper Adams is starting here today gives us that great opportunity."

For more on the NCPF see page 12

Report confirms engineering central to economic growth

THE Institution of Agricultural Engineers has welcomed the results of a study undertaken by EngineeringUK that reveals, not only is engineering central to ensuring economic growth, but it also plays a major role in helping to tackle global challenges, such as climate change, health, food security, biodiversity, water security, population and energy security.

The UK engineering sector generated £1.15 trillion in turnover in the year ending March 2010, nearly 25 per cent of turnover of all UK businesses. It also employs 5.6 million people across 551,520 different businesses.

The report - *The state of engineering 2012* - calls for parents and teachers to promote the importance of subjects such as physics and mathematics to primary age children. It predicts that by the time today's primary school pupils are of working age, the UK will need over two million additional engineers to meet demand. Thus primary age children need to have developed sufficient numeracy skills to enable them to choose maths and physics subjects for further study.

Chris Whetnall, IAgrE Chief Executive officer said, "The report further highlights the fact that there has been a significant fall (>10%) in the number of technical teachers in Further Education. This confirms the experience in our sector where technical teaching posts in both the FE and private sector have been difficult to fill.

"Salary levels within the FE sector are not high enough to attract candidates and even the higher salaries offered by the private sector are not attracting the right calibre of individuals with up to date skills sets.

"Agriculture and agricultural engineering are forward-looking sectors. If we are to meet the challenges of climate change and food security we must act now to address these issues," concluded Chris.

Engineers respond to downgrading of qualifications

FOLLOWING the announcement by Government that it would be downgrading more than 3,000 vocational qualifications, Stephen Tetlow, Chief Executive of the Institution of Mechanical Engineers (pictured) responded.

He said, "It is welcome that engineering diplomas will still count towards GCSE league tables, but worrying that they will be downgraded to count for just one GCSE instead of five.

"An engineering diploma takes about 20 hours study time a week so this downgrade will deter schools from offering this subject.

"It is vital that we encourage more young engineering talent in this country but this decision does the reverse. Government must either urgently reassess this decision or say what it is going to do instead to put engineering back on the map in schools."

LANTRA also issued a statement saying, "We believe that high quality vocational learning is essential, complementing general education and enabling schools to provide a broad curriculum which meets the needs of individual learners.

Vocational subjects do provide a context for learning key subjects such as English and Maths which supports young people develop essential skills. They also are a high quality addition to the curriculum and support progression into further vocational and higher education as well into as Apprenticeships.

"Lantra and land-based businesses are keen to ensure that the 14-19 education system in England equips young people not only with a broad range of education and skills essential for the world of work but that it also provides opportunities for young people to contextualise their learning and gain experience within the sector, helping them in the longer term to make their further education and career choices."

IAgrE backs proposed Festival of Farming & Food

THE aspirations of a group of like minded farmers to hold a festival to celebrate the best of British farming, food and countryside, is welcomed by the IAgrE.

"IAgrE gives its full support to the project," said Chris Whetnall IAgrE CEO. "Over the years the gap between the farmer and consumer has widened and this event will help to educate the general public and showcase how advanced agricultural technology has become and how it is being applied to achieve efficient, sustainable, food production."

The organisers, Farming in the Park Ltd, want to challenge every county in the UK to bring to Hyde Park an acre's worth of exhibits that will exemplify the best of food, farming and countryside from their area.

"The end of the Royal Show has left British farmers without a flagship event to promote their produce and educate the general public about where food comes from and how it is produced," added Chris.

Organisations such as AEA, BBSRC, JCB, John Deere and the NFU have also committed support to the event. The event is also supported by FACE, a farming education charity who believe the event will give children from London's 2,250 schools a rare opportunity to see the food and farming story live and close up.

The four day festival will take place from Thursday 26th September to Sunday 29th September 2013. Entry will be free and it will not be a profit-making event.

The Duke of Edinburgh writes in a brochure sent to prospective supporters, "The last time the Festival of Food and Farming was organised in London was in 1989, and it was a huge success. Now over 20 years later, it would seem about time to repeat such a venture for the benefit of a whole new generation of urban consumers."

The next task for the organisers, Mantaplan, is to raise funds and gather wider support for an event that will cost an estimated £2.75m to £3.1m to stage.

Cutting Edge Training wins LANTRA Awards Centre status

CUTTING Edge Training, a division of Ransomes Jacobsen, has been granted LANTRA Awards Centre status, complementing their recognition by other training organisations and bodies.

LANTRA Awards is a nationally recognised Awarding Body approved to develop and accredit qualifications such as NVQ/SVQ and VRQ. They also provide national qualifications in a range of subject areas, as well as technical awards and customised provision to accredit in-house training.

Ian Mitchell, a senior trainer with Cutting Edge Training said, "We are a City and Guilds NVQ training centre, NPTC assessors, BAGMA installation trainers and now with this latest accreditation, a LANTRA Awards centre. The team here have worked incredibly hard to prepare and deliver relevant and pertinent training to the grounds care industry.

"Although we are a division of Ransomes Jacobsen, we can deliver training and certification for operators and technicians on equipment from any manufacturer. In fact, a high percentage of our training is with organisations that don't use equipment manufactured in Ipswich!

"We are delighted with this latest recognition which will help us further to deliver the provision of specialised, sector specific training that meets the needs of employers and of learners."

Ian Mitchell with the LANTRA Awards Centre accreditation for Cutting Edge Training

Myerscough launch '*My Apprentice 2012*'

Campaign dedicated to increasing opportunities

On 20th January, Nigel Haworth (Chef and Lancashire businessman), Ben Wallace MP (MP for Wyre and North Preston), and Edwin Booth (Myerscough College Patron and Chairman of E H Booth & Co Ltd), attended a business breakfast at Myerscough College to officially launch and show their support '*My Apprentice 2012*' - Myerscough College's new Apprenticeship campaign for 2012.

'My Apprentice 2012' is a year-long campaign dedicated to increasing the number of Apprenticeship opportunities across both public and private sectors, with a specific focus on targeting the land based (Agriculture, Horticulture and Sportsturf) and sports industries. The launch was extremely well attended by employers from across the private and public sectors.

Guests were treated to a full English breakfast in Myerscough College's brand new 'Richmond's Restaurant', including the chance to sample an award-winning sausage made by Myerscough College's Advanced Apprentice for 2011 award winner, Daniel Standing, of Honeywell's Farm Shop in Woodplumpton, Preston. Current and former Apprentices attended the launch to share their experiences of the Apprenticeship programmes run by Myerscough College.

Ben Wallace MP gave a speech discussing the Government's commitment to increasing high quality Apprenticeship opportunities, providing the audience with details of the Government's £775 million injection of funds to increase Apprenticeships and job-relevant training.

The business breakfast was used to launch the College's first major '*My Apprentice 2012*' event - a '*100 in 100*' days campaign. Myerscough College will attempt to generate and secure 100 Apprenticeship placements across the private and public sector within 100 days, with a particular focus on targeting the land based and sports industries.

The '*100 in 100*' campaign was designed to bring together training providers, public and private sector business leaders, the National Apprenticeship Service and local media to work in partnership to deliver a sustained campaign to increase Apprenticeship opportunities and placements.

Myerscough's Principal, Ann Turner, said, "With the launch of '*My Apprentice 2012*' Myerscough College is demonstrating a commitment to increasing Apprenticeship opportunities across the North West and nationally in the land based and sports industries.

"It was wonderful that so many businesses took the time to attend and show their support."

Further Education is the key

CEO VIEW

IN 1971, the Privy Council approved the application of the Council of Engineering Institutions (CEI) (a pre-cursor to what is now the Engineering Council) to establish a composite register of professional qualifications, namely Chartered Engineer, Technician Engineer (now Incorporated Engineer) and Engineering Technician.

IAgrE immediately signed up to this concept and Engineering Technicians began to be registered by IAgrE and we have been dedicated to ensuring that this register has been given our support ever since.

Now some 41 years later, Government seems to have woken up to the fact that whilst Chartered and Incorporated Engineers are important, so too are the Engineering Technicians who should be making up the bulk of the professionally registered workforce.

Since the advent of the EngTech register, the statistics have shown too many (registered) chiefs and not enough (registered) Indians with an inverted professional pyramid . . . not a very stable situation!

Early in 2010, Lord Sainsbury proposed to Government that a council be established across the disciplines of Engineering, Science, Health and IT to better promote the value that Technicians bring to society. The resulting Technician Council has developed a '*Professional Technician Commitment*' and has asked that key stakeholders (employers and professional bodies) sign up to this commitment.

In short, the commitment asks that we all support the following aims:

1. Raising the professional status and esteem of technicians.
2. Ensuring that there is an adequate provision of career opportunities for technicians both now and to meet future skills needs.
3. Strengthening the infrastructure that underpins the professional development of technicians.
4. Increasing the size, transferability and diversity of the pool of professional technicians across all sectors.

So watch out for the promotion of new branding for professional technicians.

Of course, we should now be asking Government in turn to make a commitment to those involved with the initial training of those who are to become professional technicians. Yes, I can see you've all got there before me . . . namely a commitment to properly resource and support those working in the Further Education sector. Let's not beat about the bush, we will never produce the seed corn for adequate numbers of professional technicians until the FE sector are able to attract sufficient numbers of teachers/trainers/instructors, call them what you will, with the skills required to deliver the latest technology at the highest levels.

With many sectors also seeking to satisfy the demand for skilled trainers from ex-military personnel (the Military pension helping to supplement the meagre salaries on offer) there are clearly insufficient Army/Navy/AirForce people to go round particularly as BT and Network Rail are seeking hundreds of such people.

So Messrs Gove, Cable and Cameron, if you are asking the engineering/manufacturing sectors to be the mainstay, indeed - saviours of the 'new' British economy, that means more support for Further Education in order to attract the best people.

Simple really!

Christopher Whetnall

IAgrE and AEA support food production seminar

A ONE day seminar takes place at the Institution of Mechanical Engineers, London on March 22 entitled 'Reducing fuel costs in food processing', sponsored by AEA and IAgrE.

Event overview:

Demonstrating ways to reduce your fuel costs using renewable and recoverable energy this event will outline the potential cost savings and how to achieve them.

Defra will discuss the incentives for investment and the penalties for non-compliance while industry experts will show how these methods have already been implemented in the food processing sector.

Benefits of attendance:

- Hear from Defra about what incentives are available for investing in alternative energy and energy efficiency
- Realise the cost of non-compliance with the Government's carbon reduction initiatives
- Discover methods to utilise currently wasted energy
- Engage directly with manufactures of alternative energy technology

Who should attend?

Process industry consultants, energy managers, chief engineers, design engineers, maintenance engineers, utilities engineers and managers, project engineers, independent consultancy practitioners, chief executives, chief accountants, company secretaries, facilities managers.

Book now or view the full programme at:

tinyurl.com/7yee7kl

BAGMA and LANTRA plan future projects

Will establish land-based business centre

FOLLOWING the news that Lantra has secured a £2.9 million investment to develop and support the skills and professionalism of businesses in the land-based sector, it met with BAGMA (division of BIRA) on 15 December, to discuss working collaboratively on future projects to support the Land-based Engineering industry.

Peter Martin, Lantra's Chief Executive, and John Godden, Lantra's Industry Partnership Manager met with Alan Hawkins, CEO of BIRA and Keith Christian, BAGMA's Director General. The first funded project involves creating a land-based business centre with business support and information, developing a professional standard framework, and supporting employment entry and progression through land-based industries.

L-R: John Godden, Lantra; Alan Hawkins, BIRA; Peter Martin, Lantra; Keith Christian, BAGMA

John Godden said, "This is a great step forward for Lantra and the land-based engineering industry. In the future Lantra will strive to deliver a broad spectrum of services and solutions needed by today's land-based engineering businesses and professionals. We are delighted to be working with leading organisations, such as BIRA and BAGMA."

Peter Martin said: "These three projects are the beginning of a new way that Lantra will work to support the sector, providing solutions to help businesses take ownership of their professionalism and development."

• SIR Richard Butler, President of the NFU from 1979 to 1986, died at the end of January at the age of 83.

Paying tribute to Sir Richard, the current President of the NFU Peter Kendall said, "Sir Richard Butler piloted the NFU through one of the most turbulent periods in its history. He had to contend with growing controversy over the EEC's food mountains, the unfairness of the so-called 'Green Pound', the introduction of milk quotas and the passing of the Wildlife and Countryside Act. All this against a political backdrop which was far from benign, given the opinions of the then recently elected Prime Minister Margaret Thatcher about both subsidies to farmers and the EEC.

"It was thanks not least to his shrewdness, intelligence, diplomatic skills and the enormous respect that he commanded among those around him that the NFU and British farmers emerged stronger than ever from an incredibly difficult period."

Student DVD promotes professionalism

A TEAM of students from Harper Adams University College has created an 8 minute DVD to promote the importance of professionalism in developing a career in the landbased industry.

Supported by IAgrE, the DVD looks at how young people can achieve the various levels of professional qualifications required to further their careers.

"Acquiring a professional qualification identifies you have competences that employers value. It shows your competence and commitment to professionalism and demonstrates you have been assessed by other professionals working in your area of expertise. It also shows that your competence may be compared with standards applicable to other parts of the world," said Chris Whetnall Chief Executive IAgrE.

Peter Leech, President of IAgrE who introduces the DVD said, "Professional qualifications can take many forms from Eng Tech all the way thorough to chartered engineer. It is important at all levels, important for the employer and important for the customer you are working for. Employers need to feel confident in your ability to do the job and professional qualifications give employers that confidence.

In addition, by developing the LTA schemes, industry demonstrates the importance of having a series of stepping stones for a career path."

"Membership to IAgrE for students is free and the major

benefit of belonging to a professional Institution such as IAgrE is that it demonstrates you have attained certain minimum standards of education and training. Membership is an internationally recognised professional qualification in its own right," added Chris Whetnall.

The DVD includes glimpses of professionals at all levels within our industry and covers in detail the differences and requirements for each level of professional accreditation from Eng Tech to Chartered Engineer as well as Chartered Environmentalist.

Record apprentice numbers for Deere and Babcock

A RECORD 45 apprentices have signed up to begin John Deere's award winning Ag Tech, Turf Tech and Parts Tech apprenticeship programme for 2012.

The programme is managed by training provider Babcock, which delivers 10 per cent of all UK work-based apprenticeship programmes. The John Deere apprenticeship is the first land-based agricultural & turf machinery programme with training delivered in the workplace, with assessment and guidance from Babcock's team of expert learning advisers. Additional training takes place at Babcock's purpose built training facility at Ruddington, near Nottingham.

Babcock's training programme embeds John Deere's core subjects into the standard apprenticeship framework, in order to give both a Level 3 land-based qualification and a John Deere LTA Level 2 qualification within one learning programme.

This also links into John Deere's adult training programme at the John Deere University (JDU). The apprentices can go on to complete three free courses in their fourth year to gain the John Deere Diploma and start their adult training in JDU, using the knowledge and skills gained from the initial apprenticeship.

Part of the new 2012 intake of John Deere Ag Tech and Parts Tech apprentices at Langar

Babcock also provides a Parts Administration programme up to Level 3 (Advanced), with the majority of training delivered and assessed in the workplace. Additional training is provided at the John Deere Training Centre in Langar, Nottingham, on two occasions over this two year programme.

Commenting on the partnership, Babcock's managing director, Alex Khan, said," Since entering into the partnership just over a year ago, we have already seen the development of some exceptionally skilled apprentice engineers who will be crucial to the future of the UK's vital agricultural development."

New web service

BUSINESSES are urged to 'Love Apprenticeships' this year as Lantra, Sector Skills Council for land-based and environmental industries, has created a free website that puts interested employers in touch with learners, helping to bring an Apprentice into their workplace.

To help show businesses why they should get involved with this programme, Lantra has created special guidance at *www.lantra.co.uk/love-apprentices*. These webpages have a unique match-making service where businesses can find training providers that will be able to help them get started.

In addition to linking businesses with training providers, Lantra's specialist Apprenticeship website also has a host of tailored tools, such as factsheets, case studies and a special Apprenticeship issue of Connect Magazine, all of which are free to read and download.

In addition, visitors can review Apprenticeship frameworks and find out how to take part in consultations.

New pre-Apprenticeship course

A NEW Pre-Apprenticeship for Service Engineers course has been devised by Brooksby Melton College & Ben Burgess & Co.

The programme is designed to give new starters at Ben Burgess an industry taster while gaining a full level 1 Qualification. This course is designed to bring back old engineering values, develop welding skills, basic care and use of hand tools and workshop equipment, practical Health and Safety, safe tractor driving skills, all this alongside, life skills and the benefit of being a part of a college community. The course also includes some project work and team building activities.

BMC understand how important great customer service is to Ben Burgess and students will also be learning about customer service.

Jimmy Lockhart, Service Director at Ben Burgess & Co said, "Developing this new course with BMC, will help to keep Ben Burgess staff a step ahead of the competition and help to improve our service to our customers. Our new apprentices will get a great grounding at Brooksby in preparation for joining Deere's in-house full 3-year Ag Tech apprentice programme."

Kevin Smith, Programme Team manager at BMC said "Working with Ben Burgess to develop this course continues to show the industry's faith in our abilities to train future generations of Service Engineers."

Harper student wins Claas scholarship

THE winner of the sixth CLAAS scholarship for Agricultural Engineering is Harper Adams student, Yale Brewer.

Yale from Wilmington, East Sussex, is studying BEng (Hons) Agricultural Engineering at the University College in Shropshire.

L-R: Alastair Tulloch, Yale Brewer and Jane Broomhall

Thanks to the scholarship, he will now have his second and fourth year fees covered and a one-year sandwich placement at the CLAAS Group headquarters at Harsewinkel. He will also be offered a summer placement with CLAAS UK.

21-year-old Yale, said, "I am delighted to have been awarded the scholarship and am looking forward to be working with CLAAS UK and in Germany during my placement year.

"I hope that during my time with CLAAS, I will be able to make a valuable contribution to their continued global success. I would also like to take this opportunity to thank all those concerned at CLAAS and also Harper Adams."

Commenting on the standard of entries this year Jane Broomhall, Personnel Manager, said, "We were delighted to meet the selected candidates and their high standards made our decision very difficult."

In selecting scholars, CLAAS takes into consideration not only academic background, but also character, skills and enthusiasm for agricultural engineering, as well as knowledge of engineering and its requirements within a business.

The judging panel included Jane, Alastair Tulloch, Divisional Manager - After Sales and David Clare, Senior Lecturer in Electronics and Mechatronics at Harper Adams.

VI survey shows farmers want to help wildlife

FARMERS want to help wildlife and the vast majority believe that wildlife conservation is an integral part of their farming system according to two surveys conducted by The Voluntary Initiative.

The VI surveys found that 86% of farmers agree that environmental management and wildlife conservation are important parts of their farm management. However farmers appear not to accept the evidence of farmland bird declines from national surveys. Only 10% of farmers interviewed believe farmland birds, such as lapwings and skylarks, have declined in their area, whereas 52% thought they had increased.

Similar results were found for populations of butterflies and bumblebees. Roughly half of the farmers who thought that farmland birds had declined accepted that it was because of changes in farming practice. The others thought that declines were due to predation, disturbance or loss of farmland to development.

Richard Winspear, RSPB agricultural adviser and chairman of the VI biodiversity group, said, "The results of this survey provide a focus to help farmers and advisers understand what they can do to increase populations of wild birds and other wildlife indicators."

C&G Medal of Excellence for Brooksby student

BROOKSBY Melton College is celebrating the recent success of Level 3 Land Based Service Engineering student and IAgrE member, Charles Downing.

Charles was awarded the City & Guilds Medal of Excellence for his dedication, performance and overall achievement during the time he spent at Brooksby. At a special presentation event at Brooksby Hall, BMC Governor Ian Bowler and City & Guilds representative Rebecca Hollamby joined staff to congratulate Charles on his outstanding achievement.

Rebecca said, "It is a pleasure to present such a remarkable young man with this national award and to offer huge congratulations from everyone at City & Guilds."

Charles explained, "I've always wanted to work with tractors since I was very small and now, to play such a huge part in the family business, A. Downing Agricultural Engineers, is just fantastic. I was always told that you only get out what you put in and for me, this is what it is all about."

C&G Medal of Excellence winner Charles Downing, in the family business's van

Charles will now be attending the Lions Awards on 15 March at the Roundhouse in Camden where he will officially receive his award along with some of the other medal winners from other industry sectors across the country.

BMC Tutor, Phil Spencer said, "Charles really has worked hard and very much deserves recognition and praise for his efforts, to think how far he has come since he first came to BMC is outstanding. His dedication to the industry, the course and his family business has shown that he will be a valuable contribution to the Land Based Sector in the future."

Honda award apprentices

APPRENTICE graduates from Honda (UK)'s car, motorcycle and power equipment business areas took to the stage recently to receive certificates confirming successful completion of Honda's UK apprenticeship programme.


Andrew Stables

The Class of 2011 were awarded their scrolls by Dave Hodgetts, Managing Director of Honda (UK). And in addition to the various special awards presented to apprentices who have excelled in their particular fields, one extra special award - *'Apprentice of the Year – Power Equipment*' – was given to power equipment technician, Andrew Stables, from Henry Armer & Son in Ulverston for his personal achievement, contribution to the dealership and individual outstanding achievement.

These awards are given to the apprentice who truly excels and nominations are taken from Honda's Apprentice Trainers, Apprentice Assessors and Apprentices Managers. Nominations are judged against specific criteria and the overall winner is then identified by the Apprentice Programme Management Team.

Definitive guide to becoming an Incorporated Engineer eBook

TO assist in raising awareness and understanding of the value of the Incorporated Engineer (IEng) professional qualification, the Engineering Council has issued a new IEng eBook, which acts as a definitive guide to becoming registered as an IEng.

The eBook is available to download from the Engineering Council's website, at: *www.engc.org.uk/ebook.aspx*

Jon Prichard, CEO of the Engineering Council said, "While Chartered Engineer (CEng) status is already well respected and recognised our research has shown that there is still a general lack of understanding about the value of the IEng title. In reality, IEng registration would allow many more engineers, working in a range of positions across every sector of engineering, to reap the benefits of professionally qualified status earlier in their careers.

"Although we already have around 36,000 Incorporated Engineers on the Engineering Council's register, lack of awareness has led to a large number of practising engineers not having applied, despite meeting the relevant standards of knowledge and competence to be eligible for IEng. We hope that the introduction of the IEng eBook will help to overcome this."

The eBook is the latest tool created by the Engineering Council as part of a campaign, developed together with the Professional Engineering Institutions (PEIs), to raise the profile of IEng, and increase recognition of its value to individuals, employers, the profession and society as a whole.

Progress & change

In his last Musings as IAgrE President, PETER LEECH reflects on the recent progress made in engagement with Government, and looks ahead to changes at IAgrE

TWO words closely linked together. One doesn't happen without the other.

In the months since the last *Landwards* there has been significant progress on many fronts especially in the engagement of our industry with Government in relation to food security issues and the vital role that applied science and engineering in agricultural has to play. The need for this progress being that the link between agricultural science and engineering and food security is not even mentioned in various government reports - the most notable of them being the Foresight Report on '*The future of food and farming*'.

A delegation from Harper Adams University College (HAUC) led by Prof Simon Blackmore and Prof Dick Godwin has managed to gain the attention of the Government Chief Scientific Advisor Sir John Beddington. As a result IAgrE have been formerly requested by him to prepare a report on the contribution of applied science and engineering in agriculture as a vital part of the government's policy on food security and sustainability - this is indeed progress. A team has been formed and work has commenced on this important report which we will submit in June and publish extracts of in a future edition of *Landwards*.

In addition to that, you will probably have read the very interesting article about Rothamsted Research '*Can engineering and science deliver sustainable food security*' published in the most recent edition of *Landwards* (Winter 2011) on pages 22 and 23. This outlined the fascinating projects Rothamsted are working on such as 20 20 (achieve 20tons of wheat per hectare in 20 years).

In February we held the IAgrE Council meeting at Rothamsted with an extended agenda to tour the site and receive fascinating presentations about this and other key projects which will enable the continued development of yields and output while reducing agriculture's carbon footprint and water usage - all vital for our future. An event report is published elsewhere in this edition of *Landwards* and the PowerPoint presentations on these fascinating research projects are available on the IAgrE website under *Resources* and then *Conference Archive* (you need to be logged in as a member to access this area of the website).

I think the message is already getting through as I was fascinated to listen to the Richard Dimbleby Lecture on BBC broadcast on the 28th Feb given by Sir Paul Nurse, President of the Royal Society on the topic of science in our civilisation. Sir Paul explored the wonder of science and how it enhances our culture and civilisation. He also discussed how science can not only help solve the world's big problems, but also be harnessed to improve health, quality of life and the strength of the UK's economy.

He managed to skillfully describe how science is influencing every aspect of our daily life and spent quite some time on the subject of food and population growth and mentioned technology, tractors and machinery several times as an integral part of achieving the necessary double and double again production output required over coming generations. If you missed this great piece of oratory you can view it on the BBC iPlayer or download the speech as a document from the Royal Society web site *http://royalsociety.org*

TIMES are changing at IAgrE. We have the announcement that our Chief Executive Chris Whetnall will retire in early 2013 following 14 years leading our institution through times of serious progress and change both in terms of membership growth, secretariat offices and the image and footprint of our activities.

He will be a hard act to follow and that is why we want to start the recruitment process right now. We actively seek applications from members for the post which will start in January 2013. The post can be tailored to full or part time (minimum 3 days per week) depending on the right individual's needs. We are not planning to open recruitment beyond the membership as we are keen to have someone who is very knowledgeable both of our industry and institution. If you would like more information please call or email me or the secretariat office, as soon as possible to express your interest - the numbers you will find inside the front cover.

It is also coming up to the time to change President as it is a 2 year role and my term in office ends in May of this year. As a consequence this will be my last *Presidents Musings*. Our President Elect Andy Newbold will be taking over the reins from the Council Meeting on May 10th. I wish him every success and my full support.

I have enjoyed my term in office and feel the institution has made progress during that time. When I came in, I made a Presidential Address and set out my agenda and goals for the 2 year term. These included growing membership by 15% and focusing on the '3 Ts' of Technology, Technicians and Training.

I can report that we did not make the first goal of increasing membership by 15% but it has increased by just under 10% to 3,124 Members. I would of course count that as a great success because it always was an ambitious goal. As we all know if you set ambitious goals you make good progress and this is indeed progress.

As far as the '3 Ts' are concerned there has indeed been a focus on Technology with more of the material you now see in *Landwards* covering technology and our 2011 conference very much focusing on the topical technology of Diesel Engine Exhaust Emissions. In fact we have now agreed that every second conference should have a technology theme alternating with science.

This year's conference on 10th May is of course focused on science and the key topic is mentioned in the first half of these musings. '*Weathering the Perfect Storm - Who do you want in your lifeboat?*' make sure you don't miss it.

Technicians have received focus (see this issue's *CEO View*) as we continue to make IAgrE events and publications more appealing to our Technicians and LTA members. And of course the continuing development of the LTA (Landbased Technicians Accreditation) scheme with the launch of the LTA MEA.

As far as the 3rd T is concerned there is much activity behind the scenes with Training be it working with Universities, Colleges and other organisations on qualifications etc or promoting better communication and joined up thinking. I was instrumental in the formation of LE TEC the meeting place for our 3 industry bodies involved in Training (IAgrE, AEA and BAGMA) to ensure we tackle the big issues and speak with one voice.

I would like to sign off with a huge thank you and appreciation to all of the membership for your continued support and interest in what we do for you and the great support and work that you do in promoting our profession and institution to all around you in your daily activities. I would also like to thank the entire team at the secretariat office for their immense help and support as it would be impossible to carry on a full time job and execute my duties as IAgrE President without their help and dedication.

Lastly but not least all those committee members and others who are involved in running branches and technical groups, organising events, writing articles for *Landwards* and everything else. Thank you to all.

National Centre for Precision Farming

Harper Adams to become a hub for smart technology expertise

ON the world stage, the terminology has been in existence for nearly 25 years.

But as a practical farming method, precision agriculture has been relatively slow to catch on in the UK, despite Britain leading much of the early technological development.

The February launch of the National Centre for Precision Farming aims to change that. Based at Harper Adams University College, in Shropshire, the centre will provide a bridge between the theory and practice of agricultural techniques that many believe are vital if sufficient production of the world's food is to be sustained.

Guests at the House of Commons Terrace Pavilion for the launch of the NCPF

"It is all about managing the variables," says Professor Simon Blackmore, leader of the centre and Professor of Agricultural Engineering at Harper Adams. "Most farms deal with averages rather than specifics because farmers don't have the wherewithal to apply precise techniques. This is where the Centre will step in.

"Farmers tend not to have the information they need in enough detail to be able to understand all the variables. So, for example, if parts of a field are not yielding as well as the rest they may realise there is a problem but may have to treat the whole field rather than just the parts that are deficient."

Precision farming has two main aspects. The spatial deals with issues such as soil types, and levels of crop yield. The temporal is about the weather - whether there is too much or too little rain and which crops respond best to different conditions.

"A variation in any of these events can set back the whole process because growing a crop is not a linear exercise. Precision farming aims to make the whole crop production process more efficient, so farmers can grow the amount of crops to a higher quality, for less."

The Centre will have two main roles. On the one hand, it will promote and evaluate the use of technology as a vital aspect of precision agriculture, building upon the university's reputation as an innovator in the field of engineering. Its work in the area of robotics in crop scouting and dairy production, for example, is already well-known in the agri-food sector. It has also developed automatic steering systems which use GPS, and can measure to within an accuracy of 2cms which sections of the field have been sprayed, resulting in less chemical wastage.

Using new technologies in this way can help improve and reduce the cost of food production by targeting inputs - doing the right thing, at the right time, in the right location. This is beneficial to both the bottom line as well as for the environment, as it aims to make the production process more efficient.

In arable farming, the concept reduces the size of management zones from farm, to field, to sub field areas. In livestock the obvious management unit is each individual animal. By utilising smarter machines it is also possible to improve the delivery of information to support better decision making.

The Centre's second role will be to provide a focal point for the industry; offering a place for agriculturalists to meet and source information, and gathering and disseminating good practice from within the UK and abroad.

To achieve this it has recently recruited experts in the fields of controlled traffic management, mechatronics and hydraulics.

"We want the Centre to be inclusive, non-competitive, and used for networking - the passing on of information and bringing

. . . We want the centre to be inclusive, non-competitive, and used for networking - the passing on of information and bringing people together

Professor Simon Blackmore, Harper Adams University College

people together," Professor Blackmore adds. "We will not be able to work with individual farms in an advisory capacity but we will be able to point farmers in the direction of someone who can help them with specific problems. We will also put on short courses and conferences on precision farming and offer links to Centres doing similar work overseas.

"Precision farming is still an up-and-coming practice in agriculture in this country and, admittedly, some people are sceptical. But the early practitioners used technology which is now employed in mainstream agriculture, and many farmers have modified their techniques because of what they've learned by adopting some aspects of precision farming."

The National Centre is a much-needed resource. While farmers are being expected to produce more food, there is a growing recognition of the need to protect soils, manage water and nutrient availability, and improve animal welfare.

"Farmers can get advice from many sources but often it may be that they have to turn to those who might be trying to sell them equipment and/or services," says Professor Richard Godwin, Chairman of the Douglas Bomford Trust, which funds two PhD students at Harper Adams every year and is a supporter of the establishment of the National Centre.

"Farmers need somewhere to go for independent advice. At the same time, the agricultural industry needs a facility where research can be carried out in a secure and risk-free setting, where lessons will be learned and applied across the sector."

Whilst similar work was done at Cranfield University, Silsoe, and at the Silsoe Research Institute, in Bedfordshire, until the mid-2000s, a lack of continuity in funding resulted in the closure of these activities.

Harper Adams is ideally placed to host this new initiative because of its academic record in agricultural higher education, its strengths in applied research and knowledge exchange and its links with the industry and organisations such as the Institution of Agricultural Engineers and the Agricultural Engineers Association.

In discussion with the Agricultural Engineers Association the recently formed AEA Precision Farming Forum will work with the National Centre to promote knowledge transfer and help networking.

Commenting on the announcement, Chief Executive of the AEA, Roger Lane-Nott, said that, "The creation of the National Centre is a welcome development and will be of significant benefit in helping policy-makers and the wider public recognise the vital contribution made by the agricultural engineering sector to future food production".

As new technologies are developed an open forum will be provided by the Centre to critically assess and promote suitable methods for commercial exploitation. Current issues include, for example, compatibility between different ISOBUS (the new communication standard between tractors and smart implements) equipment providers and data exchange formats.

The Centre's early activities included a formal launch at the end of February, a public lecture on the Future of Precision Farming in the UK in the spring of 2012 and an ISOBUS 'plug fest' later in the year, to assess compatibility issues and identify new opportunities.

Dr David Llewellyn, the Principal of Harper Adams University College, said, "The Centre will aim to promote collaboration between universities, the agricultural engineering industry and the food and farming sectors, and will provide the means to contribute, in this field of expertise, to other collaborative agri-food networks.

"Our focus will be on how advanced technologies can be employed to help increase food production, whilst minimising inputs and reducing the carbon footprint of the agri-food chain.

"We run the only undergraduate degrees in the country in agricultural engineering, which produce engineers to design and deliver this vital but under recognised aspect of the farming sector - covering everything from tractors and combine harvesters to spraying technology," he added.

"The agricultural engineering industry is increasingly joining up mechanical systems with electronic solutions in arable production, but more needs to be done to get these techniques in front of a wider audience. The Centre will also cover livestock production, which has been slower to develop technologically than crop-based precision farming.

"There are now technologies, for example, that could help improve animal welfare by better monitoring feed intake and informing the farmer, remotely, about welfare issues.

"So the launch of the Centre is timely in bringing all of these new technologies and practices together. It will be a unique contribution to the UK's efforts to tackling the global challenge of food security and will support the Government's recently published Innovation and Research Strategy, which highlights the role to be played by the agri-food sector in the development and application of technology to promote economic growth."

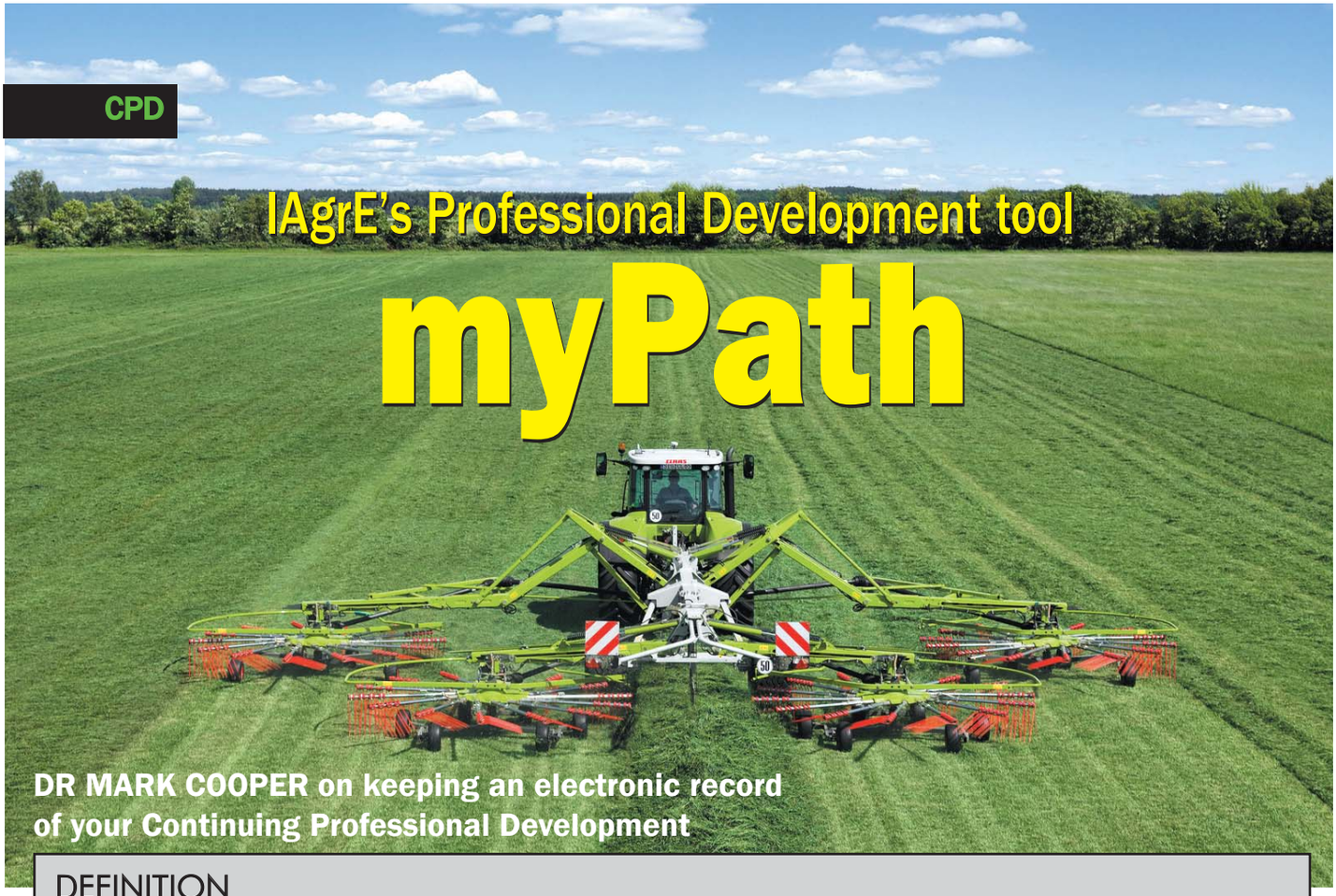
Our focus will be on how advanced technologies can be employed to help increase food production, whilst minimising inputs and reducing the carbon footprint of the agri-food chain

Dr David Llewellyn, Principal, Harper Adams University College

CPD

IAgrE's Professional Development tool

myPath



DR MARK COOPER on keeping an electronic record of your Continuing Professional Development

DEFINITION

Continuing Professional Development (CPD) is the systematic maintenance, improvement and broadening of knowledge and skill, and the development of personal qualities necessary for the execution of professional and technical duties throughout the individual's working life.

INTRODUCTION

Whatever our specialism, it is a fact of modern life that we need to demonstrate that we are keeping our professional skills up-to-date.

Quite often we don't even register the fact that what we are doing constitutes 'professional development'. How many of us have had to get to grips with new technology such as smart phones or email or new software? And yet we take such things in our stride hardly noticing or recording the time we have spent in the process.

Formal courses are easier to record as they often have a completion certificate or certificate of attendance. However, it's all too easy to keep them altogether in a folder without reflecting on the benefits or recording our experiences.

For those working in larger organisations or in highly regulated industry sectors, there is also the culture of getting a 'certificate for everything'. Short two-hour refresher training in equality and diversity, asbestos awareness and manual handling are just a few examples.

The professional bodies also have differing requirements for recording Continuing Professional Development (CPD), from voluntary systems such as that which the IAgrE operates, to highly prescriptive ones such as those operated by the Institution of Occupational Safety & Health - and all the variants in between.

A pragmatic approach is that all CPD is useful and that the means of recording and demonstrating how that has happened is of secondary importance. But we live in an evidence-based world and it is increasingly important to be able to prove that you have up to date and relevant CPD.

Therefore, any system that makes the process of keeping our records in one place and having them in a format to show not just the activities themselves but that we have reviewed them, reflected upon them and had them peer reviewed, must surely be of value?

PERSONAL EXPERIENCES

My particular interest is in agricultural safety and as a result, I have been a member of several different professional bodies - those concerning safety; agricultural engineering; and because I used to teach, those regulating lifelong learning.

For a number of years I also represented IAgrE as an auditor for the Society for the Environment and had the opportunity to see the CPD systems that other professional bodies operate. This included the Institution of Mechanical Engineers, Chartered Institute of Building, Arboriculture Association, and Institute of Environmental Management & Assessment amongst others.

I have also had the opportunity to offer advice to the secretariat in preparation for the Institution's own renewal of its Society for Environment licence and have had my own CPD audited.

Consequently, I have been quite fortunate in being able to see a number of recording and monitoring systems in operation.

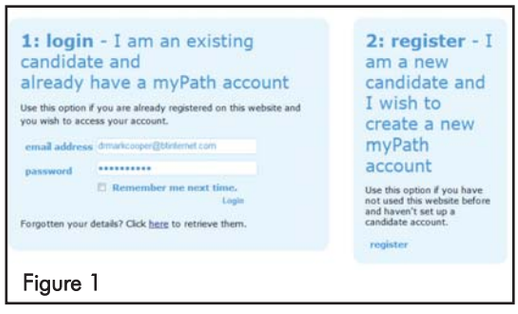


Figure 1

MYPATH

MyPath is a portal operated by the Engineering Council (EC) and to which IAgrE members have access as a means of recording their CPD.

To use the system you will need to be registered with the Engineering Council and to have available your EC registration number (on your certificate). You will also need your IAgrE membership number.

REGISTRATION AND LOGGING-IN

MyPath can be accessed through a link on the members section of the IAgrE website:

www.iagre.org/membership/cpd or directly at *www.mypath.org.uk*.

The home page (*Figure 1*) allows you to either register or log-in. Registration is very straight-forward and takes just a few minutes (*Figure 2*).

Figure 2

EVIDENCE DETAILS

One of the distinguishing features of MyPath is that it allows you to upload evidence of your CPD events by use of a simple 'wizard'.

In so doing you are prompted to consider the benefits gained and the lessons learned from your development events. These need not (and should not) be limited just to traditional courses but can include the whole range of professional activities - not forgetting contributions to the IAgrE or other bodies. Attendances at committee meetings or Council are all of value here.

This is where you start getting the value out of MyPath. Documents quietly put away in a folder are all very well but it's not until you start reflecting on what you've done do you see the importance of it. The prompts continue and ask you to give dates as well (*Figure 3*).

Figure 3

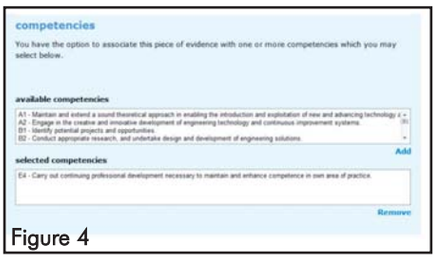


Figure 4

COMPETENCY LIST

The clever parts of an online system now become apparent.

A pull-down menu allows you to select the professional competencies you think you have achieved as a result of your CPD.

In the case I've chosen, I went on a two-day LANTRA refresher course on tractor driving. I have chosen to categorise this as 'maintaining and enhancing competence in my own area of practice' (*Figure 4*).

EVIDENCE UPLOAD

Conveniently, you can then upload evidence to support your CPD entry.

In this case I chose to scan my LANTRA Skill Card and my certificate. A range of file formats can be uploaded including links to websites and external sources. The evidence wizard guides you through the process (*Figures 5 and 6*).

Figure 5

Figure 6

PEER REVIEW

Having taken the time to submit your CPD record, you then have the option of sending evidence to a colleague for peer-review.

The best reviewer is one who will act as a 'critical friend' and they have the opportunity to provide you with feedback (*Figure 7*). My personal advice here is that you should think carefully before using a line manager. If you are looking at long term career plans you need to bear in mind that their agenda may not be your agenda! A professional colleague, quite possibly working in an outside organisation, may serve you better.

Be prepared for helpful criticism. In my case, over-reliance on spell-checkers always catches me out (Figure 7). One of the very minor short-comings is that there is no spell-checking of the free-text that you enter onto MyPath.

GENERATING REPORTS

Once you have built up a number of CPD entries, MyPath allows you to generate some simple reports (*Figure 8*).

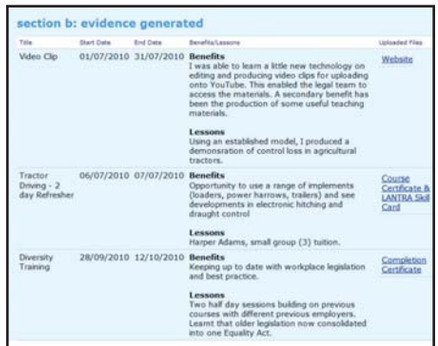


Figure 8

This can be supportive of your appraisal discussions (if you have such a system) and can help in formulating a development plan.

CPD PLAN

MyPath does allow you to put together a development plan, but it is not one of the features I have used.

Perhaps, that is a reflection of my approach and where I am in my own career. I tend to be quite reactive and decide on training and conferences events very much on what catches my eye.

However, for those who are more organised, the planning feature is available to you.

SUMMARY

We all have our personal preferences about how we organise our affairs and I am not suggesting that MyPath is the only (or faultless) system for recording your CPD.

However, if you are someone who likes having things organised electronically and who already has their training and CPD records in an electronic format, then this system has something to offer you.

Registration is free (it's part of your membership) and takes only a matter of minutes.

Why not have a look? You might find it useful!

ACKNOWLEDGEMENTS

Chris Whetnall, CEO, IAgrE for his encouragement in getting me to write this article, for being my peer reviewer for MyPath and for giving his permission to use his comments.

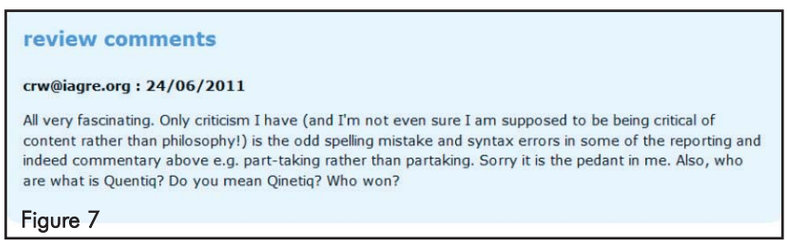


Figure 7

Delivering sustainable food and energy security


IAgrE Council Meeting at Rothamsted

This was the main topic of discussion when the IAgrE Council met at Rothamsted Research on February 9th, 2012

Dr. Chris Watts welcomed the Council of IAgrE to Rothamsted, the longest running agricultural research station in the world, providing cutting-edge science and innovation for nearly 170 years.

It employs more than 300 scientists (50 visiting scientists), 150 non-scientific support staff and 60 PhD students. In 2010-11 it had an income in excess of £36m, of which two thirds came from various BBSRC strategic and competitively won grants. The new strategy at Rothamsted Research announced in November 2011 (see *Landwards Winter 2011 66: 22-23*) is led by a mission to deliver the knowledge and new practices to increase crop productivity and quality and to develop environmentally sustainable solutions for food and energy production. This new strategy focuses on a dynamic and integrated approach to crop science, allowing plants to be studied from within (e.g. molecular level) as well as from their interactions with the environment (air, soil, water etc).

Following the formal Council meeting there was then a brief tour of the laboratories curtailed somewhat by snow and icy conditions. Julian Franklin showed the Council around the main controlled environment (CE) building containing a number of CE rooms and growth cabinets some capable of growing plants up to 3m in height. These rooms can operate with temperatures ranging from less than 5°C to more than 40°C with humidity, $C0^2$ and light levels precisely controlled.

Over 500,000 plants are raised per annum for a variety of research purposes, including insect food, nutrition studies, plant physiological processes and genetic transformation studies. In addition, a wide variety of plants grown in the grounds are used for sourcing and rearing insects as well as experimental plant material. The tour finished at the newly re-housed sample archive which holds some 200,000 samples of crops and soils taken from field experiments over the past 170 years.

Together with the accompanying meteorological records and associated documentation this archive is a unique historical record of experiments that have been measured continuously for over 160 years. These samples and records are regularly accessed by scientists worldwide for research on impacts of environmental change over past decades.

Back in the warm again there were a number of short presentations by Rothamsted Scientists to the IAgrE Council on how they felt engineering and science can deliver sustainable food and energy security.

Dr. Darren Hughes gave examples of projects where Rothamsted scientists were taking the lead. These ranged from low tech solutions where insect pests and noxious weeds are controlled by planting companion crops (desmodium and Napier grass) around and amongst the maize crop. This Push Pull agriculture now being used in East Africa has increased maize yield from 1.0 to 3.5t/ha. At the other end of the biotechnological scale, Rothamsted has transformed wheat to emit the aphid alarm pheromone - a natural insect repellent.

Dr. Malcolm Hawkesford outlined the 20:20 wheat research theme that aims to provide the knowledge base and tools to increase potential wheat yields (in the UK) to 20t ha-1 within the next 20 years. Current UK wheat yields are around 8.4t ha-1.

He outlined some of the technological challenges including the need to balance fertiliser and water use efficiency with both yield and quality. This requires a need to improve crop canopy longevity, photosynthesis efficiency, more efficient partitioning and recycling of N to the grain, improvements in the roots ability to extract water and nutrients from different soils. He outlined some of the enabling technologies and expertise which would be used to achieve these ambitious goals. There is a need for high-speed phenotyping of field crops, a challenge in which agricultural engineering should play a lead role.

Dr. Goetz Richter explained how Rothamsted was seeking to optimise carbon capture by grasslands and perennial energy crops (such as willows). This research was driven by a need to underpin the UK's transition to a low carbon economy, contribute to future energy security and mitigation of climate change. He outlined a number of specific engineering challenges relating to crop establishment, harvesting and storage.

Dr. Andy Whitmore gave a presentation outlining the need for future farming systems to be sustainable. He outlined some of the consequences of not developing sustainable systems that supply enough food including increased levels of misery, political instability and mass migration from disadvantaged nations.

Underpinning all the work at Rothamsted is the need to provide secure and increasing amounts of healthy food and make a contribution to the supply of renewable energy without reducing other ecosystem services. We aim to show how such systems can be delivered through research into better ways of managing pest control, biodiversity, grazed grassland and soils with the overall goal of designing and quantifying sustainable systems. Avoiding food waste must be part of a sustainable food supply.

There was a wide ranging discussion both during and following the presentations including the relative benefits of government versus commercial research, the conflicting requirements of public access and IP protection. Whether research should be aimed at improving yields in developing counties or high tech solutions in developed countries, the need to close the gap between theoretical and actual yields and how the potential benefits of precision agriculture may be constrained by current tractor design and legislation remains.

During informal discussions a number of potentially useful links were formed between Rothamsted Researchers and IAgrE Council members. There was a general agreement from all parties that this had been a really useful day.

LANDWARDS 2012 CONFERENCE

Weathering the perfect storm

Thursday
10 May 2012
Stareton Hall
Stoneleigh Park,
Stoneleigh,
Warwickshire,
CV8 2LZ

Who do you want in your lifeboat?

A conference for scientists, engineers and managers with an interest in how our sector will introduce innovations to counteract the effects of the 'Perfect Storm'

A "perfect storm" of food shortages, scarce water and insufficient energy resources threaten to unleash public unrest, cross-border conflicts and mass migration as people flee from the worst -affected regions. The IAgrE Landwards 2012 Conference will respond to the the *Foresight Report - The Future of Food and Farming*, by allowing representatives from various sections of the landbased sector to demonstrate the challenges they face in meeting the implications of this perfect storm whilst focussing on the need for sustainable intensification of agriculture.

> ***"Our Conference this year provides an excellent opportunity for IAgrE to demonstrate how it is ready, willing and able to provide the kind of 'joined-up thinking' necessary to bring together all the elements of food production and protection of valuable resources to meet the needs of society over the coming years. The event will provide an interesting and thought-provoking forum that will enable everyone attending to participate in the debate."***
>
> Andy Newbold, President Elect, IAgrE

Conference kindly sponsored by:

Challenger

In association with:

Knowledge Transfer Network – Biosciences

Royal Agricultural Society of England

Knowledge Transfer Network – Environmental Sustainability

CONFERENCE SPEAKERS:

People - the missing link

FOR a generation agriculture seemingly moved from crisis to crisis.

It was under valued and given little recognition for the role it played. At one point it was suggested that we could rely on imported food rather than invest in a domestic food producing capability.

How rapidly things change.

We are now facing a situation of rising global population, limitations on the availability of future recourses and a serious challenge about how we meet and feed a potential 50% increase in population.

Happily agriculture is the kind of organisation which thrives on challenge but to thrive and prosper in this new environment, it will need the right resources including R & D, new technologies, capital investment and above all the right people.

People - the missing link gives us the chance to explore how we equip our people for the future. How do we equip our technicians, our managers and leaders so that they can deliver the industry of the future?

Jack Ward

City & Guilds Land Based Services

JACK Ward is CEO of City & Guilds Land Based Services which is a division of the City & Guild Group.

It specialises in the provision of vocational land based qualifications, specialist licences to practice and continuous professional development schemes. Jack also leads on the Group's sustainability strategy and the development of its greens skills portfolio.

Prior to joining the City & Guilds Group in 2006, Jack worked for the NFU as its Regional Director for the East Midland region. He also held a number of posts within the NFU before taking over as Regional Director.

Jack is a Nuffield Scholar and a former Chair and Trustee of the Nuffield Farming Scholarships Trust. The Trust provides grants to young people in agriculture, horticulture and forestry to support individual study and personal development.

Jack is former Director of the Oxford Farming Conference and an Associate of the Royal Agricultural Society of England

David Alvis

Technology Strategy Board

Mr. David Alvis grew up on a dairy farm in the south west of the UK

He has an agriculture degree from Imperial College, University of London and an MBA from Cranfield School of Management. He worked for 12 years in the fresh produce industry, for Greenvale AP one of the UK's largest potato growing and processing businesses, before studying for his MBA in 2002. This was followed by 6 years in the Agricultural supply industry, working predominantly as the UK commercial director for the French owned Roullier Group.

In 2008 David was awarded a Nuffield Scholarship to look at External Capital Investment in Agriculture with particular focus on large scale dairy farming, during which time he travelled extensively in the US, Europe & Australia.

On completion of his scholarship in 2009 He set up Winstone Agribusiness Consulting Ltd a consultancy providing strategic advice and consultancy services to public and private sector clients.

Through his business, he is currently contracted to manage the Sustainable Agriculture & Food Innovation platform for the Technology Strategy Board (*www.innovateuk.org*), a UK government agency sponsored by the Department of Business Innovation and Skills (BIS).

The innovation platform is a £90m programme of investment over 5 years (2010 - 2014), co funded by the Technology Strategy Board (TSB), Department of Environment & Rural Affairs (Defra) and the Biotechnology & Biological Sciences Research Council (BBSRC), with the objective of stimulating the development of new technologies and business innovation that will increase the productivity of the UK Agri-food sector whilst reducing its environmental impact.

In April 2011 the platform launched a £16m call for UK business led collaborative R&D projects to develop innovative technologies that will improve the supply and efficient utilisation of sustainably produced protein within the agri-food chain.

Should there be room in the lifeboat for livestock?

CURRENT demand for meat and other farm animal produce is considered by many to be unsustainable for several reasons, including global greenhouse gas emissions; standards of farm animal welfare; water availability and usage; and human health, e.g., rising incidence of cancer, obesity and diabetes in Western countries.

Demand is forecast to rise as a result of global population growth. These buttress Beddington's impending 'Perfect Storm' of food shortages, scarce water and insufficient energy, which he estimates will peak in about 2030.

This talk will cover, amongst others, global demand for meat, eggs, milk and other livestock products; veterinary and agricultural ethics; the role of the agricultural scientist and engineer; the farm animal's take on 'sustainable intensification' . The paper is deliberately provocative.

Some argue that ruminant agriculture will continue to prosper unlike non-ruminant farming because cows, sheep and goats can utilize grass and other herbage that cannot be consumed directly by humans. Others argue to the contrary and point to the rising demand for pork, eggs and chicken from grain-fed pigs and poultry in the BRIC countries. Of course the trick for the farmer is to make a profit in an era of stagnant or shrinking markets.

This concept and timescale are beginning to be incorporated in long-term business planning by retailers and others. Nevertheless, marketing sustainable animal produce will require considerable innovation and flair in public and private policies if marketing messages are to be optimised.

Prof Christopher Wathes

Royal Veterinary College

CHRISTOPHER Wathes holds the Chair of Animal Welfare and is director of the Centre for Animal Welfare at the Royal Veterinary College, University of London.

Prior to this appointment, he was Director of Science at the BBSRC's Silsoe Research Institute. His research focuses upon the environmental biology of farm and other animals with applications to animal welfare, which he teaches to veterinary and other undergraduates.

The Centre's approach is systems-based, multi-species, multi-scale and multi-disciplinary and comprises over 20 staff and postgraduate students. He is Chairman of the FAWC, the independent body that advises the British Government on farm animal welfare.

The Role of Soil and Water Management

THE role of Soil and Water Management is crucial to '*Weathering the Perfect Storm*'.

This ranges from the management of flood risk, soil erosion, drainage and the storage of run-off and deep percolation, through to the micro-management of the soil-water environment for the production of food, feed and fibre.

It is the management of the soil's environmental factors that makes a significant difference in improving crop yield for given levels of fertility and plant genetic capability.

As this is principally focused *Landwards* a 'Tractor' might be more useful than a 'Lifeboat'!

Prof Dick Godwin

Harper Adams University College

RICHARD Godwin holds Emeritus, Honorary and Visiting Professorships from Cranfield University, Czech University of Life Sciences and Harper Adams University College respectively and an Honorary Doctorate from the Slovak University of Agriculture.

In this capacity he supervises research programmes and provides academic leadership. This follows a long career as a researcher / teacher in the field of agricultural engineering, soil and waste management and precision agriculture at the former Cranfield University at Silsoe.

His contributions have resulted in an improved fundamental understanding of soil - machine systems; the development of improved soil engaging tools and methods, soil and water management and waste management. He has spent considerable time transferring the principles to designers, advisors and farmers. The transfer of this technology through teaching and short courses has helped in the application of his work towards improved production systems, 'the sustainability of soils', and the improvement of the environment.

Conference programme

DETAILS AND BOOKINGS
Tel: 01234 750876
E-mail: conferences@iagre.org
Web: www.iagre.org

Morning

09.15	IAgrE Annual General Meeting	
09.45	Registration and Coffee	
10.15	IAgrE President's Welcome	Andy Newbold
	Setting the Scene Harper Adams University College	Conference Chairman, Dr David Llewellyn
10.30	Government Priorities and Research	David Alvis, Technology Strategy Board
10.55	The Role of Soil & Water Management	Prof Dick Godwin, Harper Adams University College
11.20	Refreshments Break	
11.35	Should there be room in the lifeboat for livestock?	Prof Christopher Wathes, Royal Veterinary College
12.00	People - the missing link	Jack Ward, City & Guilds Land Based Services
12.25	IAgrE Annual Awards Ceremony	
13.30	Lunch	

Afternoon

14.15	1-minute elevator pitches from each of the morning's speakers with questions from the floor.	
14.30	Workshop	
15.00	Presentation of responses	Hosted by a panel of facilitators
15.15	Summing up	Conference Chairman
16.00	Tea & disperse	

PRE-CONFERENCE DINNER
WEDNESDAY 9 MAY, 7pm for 7.30pm
Oak Tree Restaurant, Stoneleigh Park.
We will be hosting a pre-conference dinner.
Cost is £42.00 per head (exc VAT).

OVERNIGHT ACCOMMODATION
A limited amount of rooms are available on-site at Stoneleigh Park Lodge at a reduced conference rate of £55.00 (exc VAT) single or £65.00 (exc VAT) double.
TO BOOK: Call 02476 690123 and quote "IAgrE".

A CAREER not
just a job

Landbased Technician Accreditation Scheme

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QUALITY products deserve QUALITY technicians

PROFILE: Professional Technician

NIGEL WILSON is a Service Manager with dealership, Ashfield & Wilson Ltd, based in Dungannon, Co Tyrone in Northern Ireland

Name
Nigel Wilson

Dealership
Ashfield & Wilson Ltd, Dungannon, Co Tyrone, Northern Ireland

Position
Service Manager

Job and brief description of responsibilities:
I have responsibility for managing the Workshop, which includes scheduling Pre Delivery Inspections, Stock and Customer Repairs. As the most experienced technician, I am also heavily involved in the more complex repairs that come into the workshop, or occur in the field.

Q&A

What qualifications have you achieved to get to the position you are in?

After leaving school, I studied on a day release basis at the local Technical College while an apprentice.

Throughout my career I have continued to attend training courses offered towards the qualification of Master Tractor Technician.

Why did you choose to go into the role?

My father together with a colleague began the business in tractor repairs and second hand sales over 35 years ago, so tractors featured heavily as I was growing up.

We live in a rural area, so growing up I also learnt a little about farming. I was always interested in machines and engines, so training as a tractor mechanic was an obvious choice.

What skills do you need in your job?

A methodical, organised approach to every situation is important, as the key is to think through all the possible causes of a problem, and eliminate them one by one, rather than jump to a decision.

Working as a technician is usually as part of a team, so being able to get on with your colleagues is also vital. However, in the field, you also have to be confident to make a decision on your own, but that is something that comes with experience.

How does an LTA accreditation help your career?

Formal qualifications that are widely recognised ensure that a technician has a definite knowledge base, and a good understanding.

Being prepared to study and obtain qualifications also shows an intention to progress in your career, and any employer wants a technician who will stay and contribute to the company for many years, and who is committed to their career.

What have been your main career achievements?

To progress through from apprentice to Service Manager within our own business, and to be in a position now to contribute to all the decision making in partnership with my father.

How do you see your role/career progressing?

I am increasingly moving into a managerial role within our family run business which involves learning a number of new skills.

I also intend to keep raising the status and profile of the Workshop as an integral part of our business. Without a dedicated and experienced team in the workshop, all other aspects of the business suffer, as one of the most important aspects to Agricultural Sales is the ability to offer top quality service and repairs. I am very fortunate to work with an excellent team.

Are you intending to study further?

I have attended courses specifically tailored to looking at Management and Marketing, as I can see my career increasingly entering these areas.

What do you like most about your job?

I enjoy being part of a good team. There is also a great sense of satisfaction in solving problems - especially difficult ones. I also enjoy the variety, as no day is the same.

What do you think is the most interesting new technology developments since you began work?

The reliance on computer based diagnostics has radically altered the way we approach the machines, compared to when I began work.

What piece of advice would you give someone wanting to become a landbased technician?

It is an immensely satisfying career when you are able to diagnose and fix a problem with a machine.

It is vital to learn the basics well, and be prepared to learn, no matter how much you think you already know.

Has membership of IAgrE helped you at all?

Formal qualifications have helped raise the profile of technicians.

It does not matter how good a product is, or how good the sales team are: if a sale is not backed up by top quality service and repair, repeat business is very difficult.

> “It is an immensely satisfying career when you are able to diagnose and fix a problem with a machine”

The Altos story

The latest model Altos, with Cat II three point linkage and hydraulic pto (*Photo 6*)

by **Richard Smalley FIAgrE**

RICHARD Smalley, invented the world's first mini 360° excavator with patented stability, 170° bucket crowd, outstanding digging 'tear out force'. offset digging and zero tail swing in 1960 (photo 1).

He went on to invent a grave digging machine, amphibious dredgers, swamp drainage machines, sand skimmers for the water industry (blue green algae) and forestry drainage for tree plantations. This functioned in between trees by having a 360° walking skid excavator which was able to operate within the width of a ditch, with trees either side, thus not damaging the standing crop.

This led into the design of a tracked tree harvester to work on the ridge and furrow created by the Cuthbertson plough system for tree planting.

The Forestry Commission in 1970 asked if we could design a tree harvester to be able to work in the conditions which had been created by the ridge and furrow principle (*photo 2*), as conventional tracked converted excavators found it difficult to cross the high ditch banks which were still the same height as the day they were created (the expected erosion did not happen).

Having supplied several machines (*photo 3*) to the Commission and contractors with a track system purposely designed for forestry, a raised idler and sprocket gave our product outstanding ability to negotiate deep drains on the edge of the plantation and outstanding ability to cross the ridge and furrow terrain.

I noticed the difficulty the driver was having because the machine was not stable when offering the harvester head to the tree to be felled. On top of this the driver experienced a very rough ride when travelling over the ridge and furrow and over rocks and logs where the harvesting was taking place.

In 1994 I realised that if the chassis was not rigid the tracks would be able to travel over the ridge and furrow much easier and be able to accommodate longer tracks, reducing ground pressure. This would also mean no twist to the top super structure. Also it would give the flexibility needed to be able to lock and make the track frame rigid when the operator needed to slew and extend the boom with the harvester head to the tree to be felled. It would also give stability when the unit was rotated with the full weight of the tree to de-limb and cut to length.

The concept of Altos is for the track frames to provide pivoted oscillation, giving the operator stability when harvesting or felling a tree and flexibility when travelling, completely automatically.

The award-winning (2003) Altos not only provides stability and faster tracking speed, but also reduces track wear. Additional driver comfort is also a benefit, meaning the driver can control the whole machine more easily, thus reducing damage to the attachments.

Altos provides much improvement to the environment by reducing ground damage as there is always a full length of track to the ground, reducing ground pressure and requiring less power to climb over obsta-

Photo 1

Photo 2

cles and turn the machine on its tracks.

Due to the increased traction which Altos provides as a result of the permanent positive track contact, machines have been supplied to work in very steep terrain as post drivers, pile drivers, drill rigs (*photo 4*) etc.

Other applications have included large processing machines such as refuse shredding units and rock crushers. This indicates how tracked harvesters will have further agricultural industry potential as machines get larger and yet will be required to reduce ground pressure - for example sugar beet harvesters, mobile food processors and packing machines.


Photo 3


Photo 4

Altos would reduce machine weight as the requirement for heavy structural chassis is not required to stop twist to shafts and rotating machinery where bearing and meeting surfaces are critical on alignment tolerances.

Our Altos chassis are available from 2.7 tonnes to 30 tonnes.

Attachments to Altos chassis include a Tilt table which has the ability to level 38° forward and 20° left and right, with the option to have a slew ring drilling for 360° attachments added such as excavators, platform lifts, wood chippers, biomass harvester, tree harvester etc. All these are able to provide a level stable platform for the power unit and the driver so increasing product output and driver comfort.

Our latest model of Altos is the patent applied for, Altos 2737 Implement Carrier (*photo 5*). This includes the above features as well as remote radio control for tracking (two speed up to 6kph). Cable operated 180° power slew via two hydraulic rams enable the 1m telescopic arm to work from either side and also to withstand the forces incurred by travelling / resistance. An implement such as a bush slasher for example, can be used with the Cat II linkage, in both forward and reverse, and whilst extended to the side (*photo 6*).

The telescopic arm can also lift an implement such as a post driver high enough to drive posts on top of a stone wall 1.2m high - such as those found in Cornwall, Wales and Scotland. It is able to be placed either to the left, or right, or in front of the machine.


Photo 5

The Altos 2730 (*photo 7*) also has incorporated into its patent, the ability to level forward 28° and 20° either side, all by radio control - making it truly a machine for the mountain environment.

Having power options from 29Kw - 65Kw, machine size and weight has been designed for transport on a plant trailer towed by a Land Rover-type vehicle. This makes it suitable for the agricultural contractor where rapid, simple transport is desirable.

Because there is no operator on the machine, this enables the Altos 2730 to work on inclines of 40° having steel tracks with rock guards full length, and having raised front idler and rear sprocket. The Altos' tank like tracks give it an outstanding ability to work on mountains and in rocky conditions. It is ideal for deer fencing work, or for setting forest boundaries.


Photo 7

To summarise, Altos provides greater driver comfort, safer operation, lower ground pressure, better traction, better attack angle, with less power required to climb obstacles. This means reduced wear to the undercarriage and reduced damage to the environment.

In the past tracked machines have always been looked at as large, cumbersome, rigid machines, providing sudden movement when crossing uneven ground, without the ability to control change to the movement of the upper structure. Therefore they have become heavier and more robust, which has made them unwieldy and difficult to transport.

. . . I realised that if the chassis was not rigid the tracks would be able to travel over the ridge and furrow much easier

Professional review

GEOFFREY WAKEHAM believes that the importance of Continuing Professional Development cannot be underestimated by engineers

WHEN I renewed my Institution of Mechanical Engineering membership last year I took the opportunity to terminate my registration as a Chartered Engineer.

In part this was because I felt I could no longer meet the requirements and also because no organisation had made any attempt to check if I was carrying out Continuing Professional Development or functioning as an engineer at Chartered level. At about the same time I received a small card outlining my responsibilities, as an engineer to society and beyond.

On a recent visit to a small production facility with low labour input and high capital worth, some discussion took place as to the cost of employing staff. I am not sure I agreed with many others' views that it only cost some £20k per employee per annum. A figure of £60 per hour was suggested for an engineer which I also disagreed with but had no immediate argument or hard figures to put forward to support my views.

The other day our dishwasher door mechanism failed. I was happy to call the local repair agent but my wife shamed me as an engineer into looking at the problem first. It turned out to be a fatigue failure in the counter balance system. I duly repaired the mechanism. This however, beyond understanding the failure mode, did not make me reapply for Chartered status.

These relatively minor events in my life prompted me to consider the process of becoming a registered engineer and in particular the Professional Review process. From my experience over the years on review panels, I remember the three major areas where interviewees struggled were in finance, their social responsibilities and surprisingly in the area of product failure.

Fatigue of welded structures was a mystery to many designers. Welding is a common manufacturing process in the production of agricultural machines. Fatigue in one form or another is the major cause of failure in most machines whether agricultural or otherwise (or the need to carry out preventative maintenance).

It would appear that in many engineering degree courses fatigue was treated as a minor topic area; I trust this is no longer the case. The evidence from construction equipment and agricultural machines is that over recent years current design engineers are well aware of the problem but what about manufacturing engineers and service staff?

I was once sent to Mexico to supervise the purchase and installation of new heat treatment equipment in a facility producing disc ploughs. UK made units did not suffer from breakages of the disc supports while those manufactured in our Mexico factory were showing alarming levels of failure. The cause of the problem was not poor heat treatment but minor changes instigated by manufacturing that introduced major stress concentrations at critical points. A similar problem arose with failures to sugar cane trailers.

On the basis of reports from the field service personnel we fitted strain gauges to the point of failure but could not detect excessive stress levels. We therefore loaded a trailer beyond the rated loading and drove at high speed over rough ground. We split the towing tractor in two but failed to find any signs of failure in the trailer. On demanding further evidence it became obvious that the trailers were being assembled incorrectly on reaching the tropics.

Engineers seem to be happy to let the accountants and cost engineers tell them how much it costs to produce a design, how much it costs to run their departments and what the relative costs between testing and warranty are.

How you cost a process will determine how one designs a product. The cost of an in house engineer will determine how one tests a product and what equipment one purchases to speed the product development cycle. It is often difficult to get accurate figures but looking at the cost of exter-

> “. . . we should all make sure we keep up to date with our obligations to our customers, employer and the world at large”

nal services will give one an idea of what it is costing you to do the job.

A farm worker may cost £20 per hour but to get a contractor to cut your silage can cost £200 to £300 per hour. A lawyer can cost £500 to £1000 an hour. In my small manufacturer, by a rough estimate, each member of staff needed to generate some £350 per hour to cover the cost of running the plant.

In practice we should not look at costs against labour but against the processes and functions of the enterprise; but that is another matter altogether. The decision to buy a component currently made in house from an outside supplier rarely takes into consideration the knock-on costs to remaining in-house production even in a plant with sophisticated costing systems and especially those primarily based on cost per hour of labour.

The third area is that of social responsibility and the impact of forth coming legislation related particularly to the environment. How many of you have been into the Institution’s website and checked out the **Institution Of Agricultural Engineers Code And Rules Of Professional Conduct And Disciplinary Regulations** since it was reviewed and revised in May 2010?

Are you aware of any EU legislation that will impact on your products over the next ten years or so; one needs to look at least that far forward if you are planning to make changes to your product range?

How will changes to the Machinery Directive or future Health and Safety requirements impact on your product design or working practices? Does the Energy Efficiency Directive mean anything to our industry?

In practice it is unimportant as to your plans regarding registration; as practicing engineers we should all make sure we keep up to date with our obligations to our customers, employer and the world at large.

Try going through the list of attributes of a Chartered, Incorporated Engineer or Engineering Technician as detailed at **tinyurl.com/6qqz75k** and brush up where necessary so you can meet your professional obligations whether you are registered or not.

When I was on Professional Review Panels I was constantly reminded where I needed to carry out CPD. Now that I am retired and limiting CPD to areas of interest rather than those specified by the Engineering Council I no longer feel I can legitimately claim to be a Registered Engineer. Can you?

I commend to you to seek registration at an appropriate level to your professional activities and regularly review future needs to maintain that status. Registration will tell the industry you are a professional in the engineering industry, CPD will ensure you are what you claim to be.

Valuing the natural environment’s contribution to our lives

April conference examines role of ecosystem services:

Date: Tuesday 3rd & Wednesday 4th April, 2012.

Location: John McIntyre Conference Centre, Pollock Halls, Edinburgh.

SCOTLAND has a finite amount of land and many potential uses for it. Debates over one choice against another are common, but the latest biennial SAC/SEPA Conference, planned for 3rd and 4th April, will take a far wider perspective on the issue. It is the 9th of these Agriculture and the Environment events.

Increasingly policy makers and land managers are being asked to take account of the impact any development can have on the whole ecosystem. Over two days in Pollock Halls, Edinburgh, scientists and the land use sector will discuss what that means and how to achieve it.

The rich and diverse natural environment that is Scotland’s ecosystem includes water, woodland, soil and landscape. It supports key industries and provides many, often unrecognised, services.

However while food production, forestry and tourism have well understood economies it has been far harder to establish a value for what other services the ecosystem provides, such as flood management or better air and water quality.

Over two days and four sessions the conference will look at the issue. A variety of invited speakers from home and abroad will consider how ecosystem services are currently understood, what ecosystem service delivery means at a practical level, what form of governance is most effective and how thinking and management practices need to change.

Organised jointly by the Scottish Agricultural College and the Scottish Environment Protection Agency the Conference, ‘*Valuing Ecosystems: Policy, Economic and Management Interactions*’, recognises the contribution of The James Hutton Institute, Forest Research and Scottish Natural Heritage.

MEMBERSHIP ENQUIRIES
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MEMBERSHIP MATTERS

BRANCH REPORTS

NORTHERN IRELAND BRANCH

Amenity and Beyond

MOST people have seen a distinctive orange coloured Kubota compact tractor, mower or mini digger at work in their area but few will know of the extent of the company's world wide product range or its engineering origins.

This was the subject of a recent presentation titled ('*Kubota tractors - amenity and beyond*') by Mr David Blackwood, who at the time was Sales and Marketing Manager of the Tractor and Groundcare Division of Kubota (UK) Limited (he left this post in January 2012) to the Northern Ireland Branch of IAgrE.

Mr Blackwood, a graduate agricultural engineer, originally from Co Armagh, was based at the Kubota (UK) headquarters in Thame, Oxfordshire. Mr Sam Thompson, Kubota's Zone Sales Manager for Ireland, also attended.

Kubota origins

The meeting presentation commenced with a DVD describing the wide range of worldwide Kubota engineering activities in support of food production, clean water and the environment.

Kubota is a family name and the company, still privately owned in Japan, started making castings in 1889. By 1893 they were making cast iron pipes for water supply. This developed to being a major player in water and purification projects such as those current in China for sewage and water handling / purification. Technologies include submerged membranes for water cleansing and incineration systems for sludge management. Kubota also manufacture steel rolling machinery, air conditioning plant, automotive braking systems and vending machines.

Engine production began in 1917 and Kubota are major manufacturers of single, twin, 3 and 4 cylinder Tier 4 compliant diesel engines up to 100kW.

They are now market leaders for compact tractors. The first L13G was launched in 1960 to cater for local demand in Japan where average farm size is less than 1 hectare. The first, now well known compact diesel tractors complete with hydraulics and four-wheel drive, were sold in the UK from 1974. Kubota (UK) Limited was established in 1979. It now has 70 staff within 4 Divisions of Tractor and Ground care, Construction equipment, Engines and Spares / After sales service. It supplies around 4,000 ride-on mowers / tractors, 2500 mini excavators and 10,000 engines each year. Five staff members from Japan are based in the UK as part of the company policy of maintaining close contact with local markets. There is also a development area to prove products for local conditions and to develop new ideas.

The operation serves the UK and Ireland markets as well as those in Iceland and parts of Scandinavia.

Mr Blackwood went on to describe the evolution of and key features of the product ranges for the agriculture and ground care sectors as follows.

In general, the first 2 numbers in the Kubota mower and tractor model numbers indicate the engine horse power.

Grass cutting

All Kubota mowers are the rotary type and the smallest is the T1880 18hp side delivery ride-on mower. It is the only petrol version in the range as all the other mowers and compact tractors are Kubota diesel powered. The GR1600 rear delivery mower has a 13.5hp diesel and a 42" deck.

The larger 21hp 48" cut GR2120 is for professional use and equipped for tight turns around obstacles by having a 70degree steering angle and disengaging the drive to the inner rear wheel during the turn. The G2160 adds electronic power steering, hydraulic mower lift and a choice of cutting widths up to 54".

The G23 and G26 mowers have the option of high-lift collectors for quick grass transfer to a transport vehicle. The GZD15, GZD21 and ZD326 zero turn mowers (a popular choice in the US) are steered by independent levers rather than the conventional steering wheel as on a tractor mower. The 4 wheel drive professional 'F' series (with 18 to 36 hp versions) carry the mower deck out-front. Because of their suitability for a wide range of terrain and conditions they are a favourite with local authorities and grass cutting contractors. Many are also used now during winter with a front mounted snow clearance blade.

L-R: Sam Thompson (Kubota, Ireland Zone Sales Manager) , Gary Connolly (IAgrE Branch Chairman) and David Blackwood (guest speaker from Kubota (UK) Limited

Utility vehicle

The RTV 900 is a 21.5 hp diesel powered load carrying vehicle with a bench type driving position and a roll over protective structure (ROPS) or cab.

With fully enclosed 3 range hydrostatic transmission, 4 wheel drive, all round independent suspension and inboard wet-type disc brakes it is designed for safe use on slopes and rough terrain. As such it is well suited to a variety of work on estates, farms, construction sites and sports areas.

Tractors

The smallest in the tractor range is the sub-compact BX 2350 with a 3 cylinder 23hp diesel and 2 range hydro transmission, power steering and auxiliary hydraulic valves. It can carry a mid mounted mower or other implements including a front loader.

The B20 series (12 -20 hp) has mechanical transmission, 4 wheel drive, p.t.o. outlets, runs on agricultural tyres and has a rear 3 point hitch. It is well suited to garden and horticulture tasks. Its compact size and narrow track allow it to access paths and

•**CONGRATULATIONS to Ademola Olorunfemi MIAgrE** who was recently sworn in as the Commissioner for Agriculture in his home state of Ondo State, Nigeria.

Mr Olorunfemi has also recently been elected as Deputy President and President-Elect of the Nigerian Society of Engineers. This became effective 1st January 2012 and will lead to him taking up the office of President in January 2014 for two years.

buildings which larger conventional tractors cannot reach. As such, it is a modern equivalent reminder of the first compact Kubota tractors in the UK during the 1970s. The strong success of the compact tractor ranges has supported extension into a wider power range now including 100 hp plus full-spec agricultural tractors.

The B30 series (18 - 30 hp) has the options of hydrostatic transmissions and factory fitted air- conditioned cabs. It can also have Kubota's patented Bi- Speed turn feature which, at high turning angles, speeds up the front wheels to achieve smoother tighter turns.

The L3200 and L4100 are standard specification 4wd tractors with a folding ROPS. The 37 -59hp GL40 series have further options such as power shuttle transmissions and air conditioned cabs.

The manoeuvrable M40 series spans the 63 to 95hp range, has synchronised mechanical transmission and wet disc brakes. This popular range has broad appeal for farming, amenity and other sectors. There is also a version for orchard / vineyard use.


Attentive audience members

The M108S, powered by a common rail turbocharged 108.5 hp engine and with a 32 F / 32 R power shuttle transmission, is a popular choice for livestock or mixed arable farms.

The current largest Kubota tractor is the 132hp M130X weighing in at 4424kg without ballast. The 16F / 16R transmission has power shift with selectable automatic mode for both field work and transport applications. It selects the appropriate gear to optimise engine efficiency for different slopes and soil conditions. An interesting technical feature of this tractor is its large capacity 6,124cc 4 cylinder common rail turbocharged intercooled diesel. It also has Bi Speed turn and a bevel gear type front axle.

The tractor ranges now compete directly in popular power sectors within the UK and Ireland so further local dealers have been appointed to realise their full sales potential.

Kubota loaders

Unlike many mainstream tractor manufacturers, Kubota builds its own loaders at their US plant. There are 14 separate models to fit the wide range of Kubota tractors from the small compacts up to the M130X.

Other products

Kubota also offer a comprehensive tractor-matching range of implements for soil working, grass cutting, estate maintenance and other applications.

They are also well known for their rubber tracked mini-excavators with operating weights from 1.12 to 5.4 tonne. They also manufacture a specialist range of compact tracked combines, which are popular for rice harvesting in Asia.

Kubota Strategy

Kubota has an ambitious strategy to increase both turnover and market share. For example they aim to become market leaders for below-150hp tractors. They have a similar target for their products in the utility and turf care sectors.

More details of all the products mentioned here may be viewed on *www.kubota.co.uk*

A lively, informative and wide-ranging discussion covering the following topics took place before Gary Connolly, IAgrE Branch Chairman, thanked Mr Blackwood for his excellent presentation.

Topics discussed.

- Compliance with Tier 4 emissions standard
- Engine service intervals and oil specification
- Use of bio fuels
- Front axle features and how Bi Speed works
- Specification of mowers for wet grass in UK and Ireland
- Terms of 3 year warranty
- The Tsunami in Japan
- Price effects of currency variations
- UK influence on tractor development
- Appointment of dealers
- Can the M130X engine management system be remapped?
- Plans for even bigger tractors?
- Marketing advantage in the tractor market - price or quality?
- Stock holding by dealers

Terence Chambers

YORKSHIRE BRANCH

December 2011 meeting

IT was a wet and windy December night when the Yorkshire Branch held their second 2011 meeting at the Buckles Inn, Bilborough.

The turnout was smaller than usual but the speaker compensated for this by giving us an excellent overview of Krone, their history and their products.

James Duggalby is the area manager for Krone UK and along with his MD Marcus Oliver and Product Support Manager Tom Hopkins fielded various questions on the products.

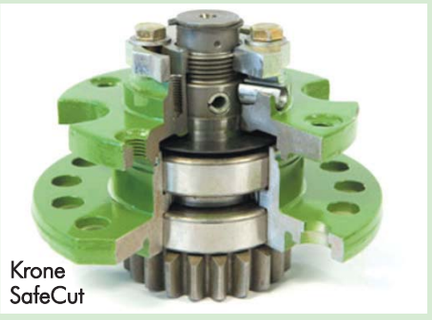
James first of all gave us a rundown of the history of the company which was started in 1903 in Speller Germany, where the main manufacturing plant is still located.

The company is split up into three divisions, the Krone Trailers, the Krone Agricultural implements and the John Deere dealership.

The most interesting fact shown by James was that over the years the trailer business had fluctuated but the Agricultural business had remained quite stable both in the manufacturing and the retailing divisions

The John Deere dealership originated from the days when Krone was in its infancy and took on the Lanz tractor agency which has obviously morphed into the John Deere dealership. This enterprise is run completely separately to the Krone implement manufacturing so as to avoid any conflicts which may occur.

The product range produced by Krone range from mower conditioners to latest technical Forage harvesters.


Krone SafeCut

One item, the Krone SafeCut cutterbars have proven excellently on the Krone Big M self-propelled mower for two years, the innovative and patented SafeCut system is standard-fit on EasyCut mowers. Providing exemplary impact damage protection, the system centres on a roll pin that connects each mower disc to the drive shaft and that shears off as the disc hits an obstacle. All elements in the cutterbar driveline are protected. While the sprocket continues revolving, the stopped disc jacks up on a thread and out of the operating area of the blades on the neighbouring discs, thereby eliminating the risk of damaging these as well.

James fielded the questions presented by the audience and Dave Bird gave the vote of thanks.

January 2012 meeting

A local company, The Alternative Energy Company (TAEC), gave an excellent presentation in January at the Buckles Inn, Bilborough.

The TAEC was formed in 2005 and is one of various enterprises run by David Elsy,

continues over

Managing Director.

David gave a suitable mix of sales and training slides on the components and principles of small wind turbines, solar panels and power invertors.

David also explained some of the other alternative energy systems such as three types of ground source heat pumps and their comparative efficiencies.

The company oversee much of the manufacture of systems and as well as the installations, so can draw on much experience. Their own offices are next to Fountains Abbey and so they have utilised sensitive designs of alternative energy generation at their head offices.

David comes from farming stock and used his family farm, on a very elevated location, to develop some early wind generating units.

After David's presentation there was an excellent mass of questions and opinions, which reflects very well on the Yorkshire branch. The diversity of alternative energy systems used in the UK and around the world was discussed. Having such a knowledgeable guest was greatly appreciated.

The firm's experience and enthusiasm made the evening very enjoyable.

Mark A Andrews

EAST MIDLANDS BRANCH

Simba Great Plains factory visit

THE East Midlands Branch had an excellent turnout of 39 for their visit to Simba Great Plains at Sleaford on February 1st 2012.

It had been a number of years since the last visit to the Simba factory, and those Members who remembered the previous visit were impressed with the developments which have taken place both to the site, and the products since then.

The meeting was hosted by Alan Davies, Engineering Manager at Sleaford, and a current IAgrE Member. Alan gave an overview of the progress made by Simba over the past 10 years, including their acquisition by Great Plains Mfg., Inc., of Salina, Kansas, USA in May 2010.

Incorporation into the Great Plains Group of companies has enabled Simba to extend and consolidate its European business, adding as it does the ranges of crop seeding equipment used both in mainland Europe and the UK. In turn, this has given the expanding Dealer coverage in Europe a full portfolio of cultivations and seeding products, which had not been possible previously when Simba was in co-operation with Horsch.

Alan also outlined some background to the USA arm of Great Plains, being the largest non-tractor, privately owned agricultural implement manufacturer in the USA. The vast experience of the US group in terms of manufacturing is being used to good effect at Sleaford, where new systems are being adopted and a considerable investment in plant and equipment for manufacture is being made.

Members viewing equipment in the new conference facility during the visit

Following the presentation, Alan and two colleagues, Adrian Hartley and Martin Hall, gave the visitors a tour of the facilities, which have been significantly enhanced and expanded since the acquisition.

Examples of recent product development were on show in the conference facility recently completed, including the new Centurion Drill which has been developed jointly by the Engineering teams in USA and UK for the European market primarily. This facility is planned to become the European 'Hub' of the Great Plains organisation and presents good opportunities for employment in the area, a feature which was regarded as extremely positive by the Members attending.

In summary and as a vote of thanks, David Pullen spoke of his visits to the Sleaford site over the years, recalling that every time there was something innovative and new to see and experience. This visit was certainly no exception.

Philip Wright

NORTHERN IRELAND BRANCH

Wrightbus - a story revealed

THE Northern Ireland Branch of IAgrE recently enjoyed a presentation about the Wright Group which is at Ballymena, Co. Antrim.

This family owned and run engineering company is now well known across the world for its bus manufacturing division (Wrightbus) and it now employs 1360 people.

The Wright story

Mr Jack Kernohan retired as Wrightbus Sales Director in 1995 after spending 50 years with the company and he has recently written a book entitled '*The Wright Way-Reminiscences of 60 Years of Coach Building in Ballymena*'.

He spoke with impressive pride and commitment during his illustrated talk about the origin and development of this family company. It all began in 1946 in a shed behind Mr Robert Wright's home at Ballymena. He had been repairing vans for the local Ballymena and Harryville Co-operative Society and progressed to build a complete new body for them on a chassis.

Its success was the start of building a wide range of vehicle bodies for local customers. These included delivery vans, mobile shops, mobile libraries, lorry flatbeds, bulk tippers, box vans, demountable bodies, livestock transporters and trailers for articulated vehicles.

The pictures shown during the presentation were reminiscent of how rural life here has evolved from a time when fewer people had cars and one-stop shopping centres were rare. Mobile shops were a lifeline for many people and some shop operators even collected local produce for resale. Some of the early Wright built shops are still on the road.

Dr. William Wright OBE, son of the founder was acknowledged for his visionary innovation and commitment. Aged 85, he still goes to work every day in this family business.

It was also fascinating to see the variety of commercial vehicle makes onto which Wright bodies were built. These included AEC, Austin, Bedford, BMC, Commer, ERF, Fordson Thames, Guy, Karrier, Leyland, Morris and Seddon. These brands no longer exist and, although some vans and light commercials are still manufactured in the UK, all of the native HGV manufacturers have gone. Their operations have been taken over or phased out and now cab / chassis supplies within Europe come from France, Italy, Germany, Sweden or The Netherlands.

Specialist Wright projects also included a demountable refrigerated system to transport milk to market in Saudi from the

Masstock farming operation there and work with Shorts to build the Land Rover based Shoreland armoured 4X4 vehicle.

The first school bus was built in the 1960s on a Commer chassis for Tyrone County Education Committee and this was the start of a trend as more bus orders followed from local customers such as Michelin. As the bus building business developed further it was decided, from the mid 1970s, to specialise in the supply of public transport vehicles.

Since then, a range of bus types have been designed and built for customers throughout the UK /Ireland and for international markets. Innovations have included the adoption of the articulated 18m bendi-bus design for some markets, the first low-floor design in the UK and lowered entry versions in 1994.

Other novel developments include the street car concept using a bendi-bus running on rubber tyres as a versatile alternative to conventional city tram systems. One such example is in operation in Las Vegas. There are also 300 double deck Wrightbuses in service in Hong Kong.

Another recent high profile success is the contract for 8 hybrid double deck prototypes (as recently shown on TV being driven by London Mayor Boris Johnston) designed to replace the traditional Routemaster and due to be in operation for the 2012 London Olympics.

Wrightbus is now an internationally recognised bus brand name and the Gemini 2 integral double decker is a popular example. It is built on a chassis from VDL (the bus division of DAF). It is available with either a conventional transmission or as a hybrid.

The engineering story

Mr Ivan Stewart, Principal Mechanical Engineer at Wrightbus described the development and testing of the bus designs and the evolution to the hybrid power versions.

Bus testing regime

Buses require Type Approval and, amongst other criteria, this involves intensive track testing at the Millbrook Proving Ground and a side-tilt test to ensure stability. The vehicle and its components need to be durable as operators expect a service life of at least 500,000 to 800,000 miles.

Why the hybrid suits urban bus service

Compared with a conventional transmission, where the engine powers the drive axle via a mechanical gear box with manually or automatically selected ratios, a 'Series' hybrid's engine drives a generator.

The current from it is used to drive electric motors geared to the drive axle and to charge a battery. The power available from the battery is sufficient to propel the vehicle on its own for short distances without the generator. This provides quieter and cleaner bus operation in the city.

Because the motors act as generators when the vehicle is descending a slope or slowing down the batteries are recharged with captured energy which would otherwise be lost as heat in the brakes. A typical bus uses approximately 22kW to maintain a steady 30mph on the flat. This speed is self-sustaining when travelling down a slight slope of approximately 0.8 degrees. Energy can be recaptured by disallowing the bus to accelerate further on steeper inclines. For example, when slowing down over 97metres to stop within 15 seconds the system can recapture about 63kW.

The engine in a conventional bus is sized to match its maximum power requirement and in speeding up or slowing down on the road is said to be 'load following'. In contrast, the battery capacity on a hybrid handles the load variation and is available to help when needed to maintain a 'steady state' of power availability. Hence the hybrid bus can use a less powerful engine running at its most efficient speed.

Compared with conventional buses the Wrightbus hybrids were tested at Millbrook on the 159 London route and found to use 31% less fuel which offers significant saving over the 700 + routes where 240 million litres of diesel fuel are used there each year emitting 610,000 tonnes of carbon dioxide. Wrightbus have also supplied some hydrogen powered buses where the electricity comes directly from a fuel cell and the only emission is water vapour.

The Wrightbus Hybrid development story

Wrightbus have trialled other systems such as a fully electric bus running on rechargeable batteries but the flexibility and potential of the hybrid was more attractive.

The first Wright Hybrid prototype used a US sourced diesel-fired Capstone turbine running at up to 96,000 rpm to drive the generator. It ran smoothly but used around double the amount of fuel compared to a conventional diesel and had a high 625 degree exhaust temperature.

The second version used a General Motors 4 cylinder 1.9 litre diesel (similar to that used in a Vauxhall Astra car).

The next had a Ford 2.4 litre diesel (similar to that in a Ford Transit van) driving a 60kW generator.

The most recent version has a 4.5 litre Cummins unit running at reduced speed and driving a Siemens 140kW generator to power twin 62kW drive motors.

The continuous evolution of the hybrid installations has also involved a progression to Lithium Ion type batteries, carried in the roof, which are about half the weight of the traditional lead acid types. It is best to have sufficient capacity to run the batteries at part load which allows lower charge resistance. Inverters are used, to drive the necessary auxiliaries such as the air compressor and air conditioning units which idle and speed up in response to demand.

Some of the engineering challenges

L-R: Ian Duff (N.I. IAgrE Branch Hon Secretary), Ivan Stewart (Wrightbus), Andew Wilson (Wrightbus) and Jack Kernohan (Author and former Sales Director of Wrightbus)

involve integrating all the components within the overall bus design and managing their heat outputs efficiently whilst providing adequate cooling of the power unit, batteries and passengers in all weathers.

Wrightbus also has its own specialist composites division where body panels are made for both in-house use and outside customers. The panels fitted to both single and double deck Wrightbuses are extensively interchangeable to simplify spares stock holding by fleet managers.

Engine technology update

Mr. Andrew Wilson, a young engineer with Wrightbus working on hybrid vehicle systems, went on to describe his liaison with the engine suppliers.

His presentation centred on recent work with Cummins and their technology solutions to satisfy present and imminent exhaust emission regulations. The current generation of diesel engines are more fuel efficient and quiet compared to their predecessors. Most of this is due to the high pressure (1800 bar / 288,000 psi) common rail system with electronically controlled fuel injection permitting precise management of injection quantity, number of pulses and timing.

The engines for current new vehicles have to satisfy Euro 5 emission standards. Various methods are currently available and many engine manufacturers (including Cummins) have chosen the selective catalytic reduction (SCR) exhaust treatment system. This injects liquid urea from a separate tank unto the catalyst to change harmful oxides of nitrogen to nitrogen and water vapour. SCR equipped engines are also proving to be relatively fuel efficient.

However the next challenge is coming with the even more demanding Euro 6 standard having to be complied with new vehicles from January 2014. Andrew described how this will require much higher catalyst temperatures. One of the practical installation problems which bus manufacturers will have to solve is finding space for the much larger exhaust catalyst silencer box and

continues over

managing the heat from it in the limited available space.

Workforce training and the future

As a progressive company, Wrightbus is investing in its future by ensuring that its workforce has all the relevant up-to-date training and a vibrant sign of this is the fact that 99 apprentices were taken on during the last year.

The meeting finished with a comprehensive discussion around the topics before the three speakers were thanked for their most informative and enjoyable presentations.

More information about WrightBus and its products can be viewed at *www.wrightbus.com*

Mr Kernohan's well illustrated book can be purchased from booksellers and an electronic version also available on Kindle.

Terence Chambers

SCOTTISH BRANCH

Burns Night

Members of the Scottish Branch met together recently for a social evening to celebrate the life and works of Robert Burns at Roslin, near Edinburgh.

Although originally conceived of as a relaxed, amateur event, the calibre of the evening was raised by the presence of two Burns experts - Bob Stewart, also a long-time IAgrE member, and his friend Jim Shields, who has just been made president of the Robert Burns World Federation.

After a rousing '*Address to the Haggis*' by Jeffrey Livingston, heaping plates of haggis, neeps and tatties were enjoyed by all, followed by delicious portions of cranachan.

After-dinner entertainment was provided by Jim Shields on guitar who performed two of Burns' poems set to song.

The remainder of the evening was filled with recitations and speeches appropriate for the occasion, kicked off by a flawless rendition of '*Tam o' Shanter*' by Bob Stewart. Geoff and Lana Freedman carried the night with a '*Toast to the Lassies*' and reply as well as an impromptu recitation of a poem in the tradition of the '*Immortal Memory*'.

As the national poet of Scotland the work of Burns is well loved in this country, but on this occasion he was appreciated by an international audience, with guests native to England, Ireland, the USA, Canada and the Philippines joining in the celebration of the Bard of Ayrshire!

Stephen Brogan

Members of the Scottish Branch enjoying a tradtional Burns Night celebration

WEST MIDLANDS BRANCH

Bucher Hydraulics

Speaker; Simon Fantom, General Manager, Bucher Hydraulics UK

IN December the West Midlands Branch were given a presentation by Simon Fantom from Bucher Hydraulics who covered a wide and varied range of topics.

Starting with a little bit of history we learned that the company was formed by Heinrich Bucher who opened a blacksmith's shop in Switzerland in 1807, later relocating the business to Germany. Over the years the blacksmith business expanded to manufacture agricultural implements for the local farming community, and also to sell those made by other companies.

Bucher tractor 1959

In 1901 the company built its first hydraulic fruit press, and in1921 launched the 'Luna' centrifugal slurry pump. As time progressed they launched a horse drawn mower with an auxiliary engine and later followed this with a pedestrian version.

In 1946 Bucher acquired a stake in Kuhn farm machinery, and in 1954 introduced the Bucher tractor which was in production for around ten years. As the years progressed the company grew in size by natural growth and the acquisition of new businesses, before finally going public in 1986.

Today Bucher Industries in split into four main divisions; the Kuhn Group which manufactures agricultural machinery; Bucher Municipal which produces compact and truck mounted sweepers, spreaders and refuse collection vehicles, (this group includes UK based Johnston Road Sweepers); Bucher Hydraulics who manufacturer and supplies customer specific mobile and industrial hydraulic system solutions; and Emhart Glass who specialise in glass container forming and inspection machinery.

There is a final grouping of various businesses which are known as Bucher Specials, these include companies who produce wine making equipment, fruit juice processing equipment and a Swiss agricultural machinery dealership.

The main market areas currently for Bucher Hydraulics are construction equipment, materials handling and lifting equipment, municipal equipment, agricultural machinery, elevator hydraulics and mechanical engineering. To support this Bucher has manufacturing facilities in Germany, Switzerland, Italy, and the USA, with each site concentrating on specific product areas. Additional manufacturing sites are located in China and India to supply these local emerging markets.

To keep ahead the company spends a lot of time and money on product research and development using traditional software tools such as finite element analysis and computational fluid dynamics, combined with extensive testing. The emphasis being on product reliability, noise reduction and improving efficiency.

Bucher produces a wide range of hydraulic products ranging from traditional manual spool valves, internal and external gear pumps and motors, flow control valves, hydraulic power packs, electronic controls, and proportional directional valves to name but a few. Many of these are 'specials' for customer specific applications and one of the unique advantages of Bucher is its ability to customize a standard product, especially directional valves, to suit a niche application with quantities ranging from one to thousands.

Simon then went on to look at some of the recent developments and innovations introduced by Bucher, these included the QXMHS internal gear motor developed specifically for forestry saw applications.

This has been designed to replace traditional bent axis piston saw motors and has an operating speed of around 10,000 rpm with very rapid acceleration and deceleration. This is essential to ensure that the logs are cut cleanly and quickly so as they don't have chance to split as gravity takes hold of the part of the log not supported by the saw head.

He then introduced us to the 'LVS plus' range of bankable directional control valves designed specifically for tractor hitch applications and currently used by John Deere. This range of valves is the hydraulic version of Lego, with a vast array of options to suit any application, allowing the system designer to specify a valve tailored to their machine.

Controls options varied in sophistication from a manual lever, to on/off solenoids, or proportional solenoids and finally a separate CanBus control node for each valve slice. The valve could be configured as a pre compensated proportional valve, or as a post compensated proportional valve which has the advantage of flow sharing if there is insufficient oil supply. The LVS plus can then be controlled by either the tractor manufacturer's own in cab controls, or Bucher's modular in cab control panel.

An interesting evening which gave members the opportunity to update themselves with some of the latest developments in mobile hydraulics, see some of the more unusual applications, and to learn a little more about the Bucher company.

Ian Moore

WESTERN BRANCH

Technical visit report - Alvan Blanch Ltd

Chelworth, 25th January 2012.

A VERY good turn out of 32 including many Royal Agricultural College students and representatives from the Energy Institute and IMechE were present for this afternoon meeting given by Simon Shaw, Industrial Products Manager at Alvan Blanch. The company has been a globally respected supplier and innovator of post harvest crop processing equipment for 60 years.

Simon started by covering the history of the company from 1946 when Mr Alvan Blanch started manufacturing farm machinery followed by forming the company in 1952. The company is still family owned with son Andrew Blanch now MD and still operating from the family farm with Andrews brother Jonathon managing the farm.

The company has 90 employees worldwide and a number of dealers. Together their sales team have a long length of service and Simon has been with the company since 1989. Training is seen as an important sales tool and this is carried out both worldwide and at Chelworth. Emerging countries present a significant growth opportunity along with new crops and industries such as bio fuel and waste processing. This is driving new product developments in the use of renewable energy and in products associated with biomass, recycling of woodchip, anaerobic digestion and re-use of waste heat from CHPs and other localised power generation schemes. 75% of all the companies products are exported to 100 countries worldwide. The major product divisions are grain dryers, grain storage and grain milling.

An example of this was presented recently installed in Saudi Arabia including a Maize flaking system for use on the very large dairy units in that region. The design of the grain dryers was discussed with the design appearing to have changed little in the last few decades but improvements have been much more automation and better moisture control.

By far the majority of the manufacturing is still done in house which has been found to keep the company more competitive especially when supplying to countries such as China and India and competing against local manufacturers in those countries. 5 years ago the company started to sub-contract out elements of their manufacturing process but it since 2 years ago this has started to be brought back in-house as it was felt it gave better control of quality, better flexibility, better product development and also opportunities for cost reduction.

A recent £2m investment is currently coming to fruition with new buildings and machine tools being installed to increase capacity, improve quality and reduce costs. The company has additional challenges to overcome compared to other similar firms when making these investments namely being located on a farm in a small rural hamlet with residential neighbours close by. Naturally concerns such as additional noise and traffic had to be addressed.

A presentation was then given by Tim Baker, Lead Design Engineer on the engineering systems used. Autodesk software is used for design with 2D CAD (AutoCAD) gradually being superceded by 3D CAD (Inventor). Sheet metal software Radan is used to interface between CAD and the machine tools used in the factory converting the CAD drawings and models into cutting/bending/punching routines. Programmes such as Radan E2i and Sage are used for Bill of Material maintenance and MRP, stock and cost control.

This was followed by a presentation by Matt Wood and Alan Cooling of Amada Ltd UK who supplied the new laser profiling, sheet metal bending presses and punch presses. Amada are a market leader in this type of machine tool and their UK branch has been based in Kidderminster since 1972. Alvan Blanch started to work with Amada in 2009. Present on the site is a 4kW laser cutter installed in 2009 which gives a finer cut than plasma and is capable of cutting a 4m x 2m mild steel sheet between 2mm and 20mm thick. Press brakes on site include two HFE types installed in 2009 followed by an HFEII in 2011. These have force ranges between 80 and 220 tons. A 20tonne electric driven EM2510 punch press was installed in 2010 for less than 2mm thick plate instead of laser cutting. This has a sheet feeder added in 2011 allowing the machine to run automatically overnight.

A tour of the factory then took place guided by Simon, Tim and Chris Budd, Commercial Manager with the representatives from Amada on hand to present their machine tools.

Thanks go to Simon Shaw and his colleagues for arranging and hosting this very informative and mutually beneficial visit.

Rupert Caplat

Long service certificates

Name	*Grade*	*Date of anniversay*
60 years		
Harry **Catling**	IEng, FIAgrE	22 Jan 2012
Brian John **Bell**	MIAgrE	26 Feb 2012
Cecil George **Henshaw**	IEng, MIAgrE	26 Mar 2012
50 years		
Harry James **Nation**	CEng, FIAgrE	9 Jan 2012
Laurence Ernest **Osborne**	MIAgrE	9 Jan 2012
Geoffrey James **Shaw**	IEng, MIAgrE	9 Jan 2012
Lewis David **Ambler**	EngTech, MIAgrE	27 Mar 2012
William Robert **Catt**	IEng, MIAgrE	27 Mar 2012
John Philip James **Munson**	CEng	27 Mar 2012
35 years		
Arthur Martin **Williams**	IEng, MIAgrE	13 Jan 2012
Charles Patrick **Schofield**	MIAgrE	13 Jan 2012
Ian James **Loynes**	CEng, MIAgrE	13 Jan 2012
Robert **Ritchie**	AIAgrE	24 Jan 2012
David William Glynne **Thomas**	IEng, CEnv, MIAgrE	24 Jan 2012
Robert William **Sneath**	IEng, CEnv, MIAgrE	30 Jan 2012
Ian David Torquil **Walker-Munro**	IEng, MIAgrE	17 Feb 2012
Michael David **Ridout**	AIAgrE	24 Feb 2012
Andrew **Prosser**	AIAgrE	7 Mar 2012
Ian Kenneth **Mathieson**	IEng MIAgrE	10 Mar 2012
25 years		
Simon Matthew Barber **Shaw**	AIAgrE	26 Jan2012
David Llewellyn Owen **Smith**	CEng MIAgrE	5 Feb2012
Stephen James **Penny**	CEng MIAgrE	5 Feb2012
David John **Purdy**	MIAgrE	18 Feb 2012
Richard Arthur **Boak**	CEng MIAgrE	18 Feb 2012
Timothy Charles **Fry**	AMIAgrE	27 Mar 2012

Membership changes

Admissions

A warm welcome to the following new members:

Member

Alker R E (Lancashire)
Boshgoff M C (Scotland)
Burgess P J (Bedfordshire)
Tillett N D (Bedfordshire)

Associate Member

Cunliffe S A (West Sussex)
Delahunty P (Ireland)
Griffiths D L (Flintshire)
Howard J J (Norfolk)
Kenway C (Kent)
Kinohan J (Ireland)
O'Gorman K (Ireland)
Pinnock C N (Cambridge)
Salih R K (Derbyshire)
Ward A M (East Sussex)

Associate

Ameer M (Sri Lank)
Bamber S E V (Glocestershire)
Coulter M R (Northern Ireland)
Jafry T (Glasgow)
Mochel T (France)
Nieckarz K M (Birmingham)
Poyser J E (Powys)
Smith G (Nottinghamshire)
Webb C (Hampshire)

Student

Barony College

Anderson A
Atkinson R
Best J
Bliemeister A
Butterworth D
Clark J
Curr M J
Edgar C
Fulton C
Geals C R
Green J
Grieve I
Hall S J W
Harrington S
Hunt B
Janoch R
Johnstone A C
Johnstone R
Jordan L
Limond C J
Lyons M
Macleod L
McCubbing L R
McMullen S
Neil R
Neilson A H
Rennie W
Robertson S J
Snape G
Sutherland K
Tait J
Thomson C J
Thomson L
Thornton A
Walker S
Waugh B

Bicton College

Beckly M
Blackshaw R
Clarke M
Cornish H
Foss S
Greenwood M
Lock O
Mock H
Oldham W
Partridge D
Powell J
Robinson T
Rogers G
Tucker-Selway J
Worsley A

Brooksby Melton College

Bidmead J
MacLean R
Scott B
Stocks P

Harper Adams University College

Abell M A
Allin J I
Baque J
Bethell B
Bradbury T
Brewer Y T
Brown J
Bush S
Caffrey P
Cowell J J
Cox R
Davies S G
Edge A
Fisher R
Flaherty C
Forde A
Gateley C
Gatenby J
Goulden H
Griffiths J
Halmshaw J H
Hanney D
Hemphill R
James T E
Kyle J
Land T
Lawn M
Leech J
Lindley T
Lott R
Mabbutt L
Madden N
Matthews J
McKeown J R H
Megahey R A M
Mellin W
Montgomery A A R
Murphy C
Nevill G E
O'Brien L
O'Shaughnessy B
Parish T M
Phillips J
Pyle C
Robertson D
Robertson E W
Roddy M
Sinclair P
Smith A R F
Smith E K
Smith M L
Standeven J G
Stewart R
Suckling D
Taylor A
Teasdale D
Thompson L
Townley J
Vale P
Verhoeven P
Whyte E
Williams L R
Williams J S
Wilson K M
Wood N O C
Woodhead M M
Woodward C
Worts E

Myerscough College

Airey J W
Birch D
Calderbank M
Collier T
Connor D E
Cornall J
Eckersley A S
Fielding J
Hartley D
Lumsden A
McFadzean B
Milton K
Murphy S
Parkin M J
Pinder R
Rawsthorn J H
Rayner-Porter J
Sanderson
Suttleworth A
Townson J W
Wellings L

Reaseheath College

Anson J E
Arundale T J
Atherton S J
Beekes T
Bell E
Blackburn P
Bowles S
Brooks J K
Burman J
Colbeck T J
Collie L
Cullinane E
Curtis L D
Dakin J
Denton M P
Donaldson R
Done A S
Dowty T G
Duncan R
Durrant T
Edwards A T
Emery T
Evans R
Farquhar J
Farquharson R
Fellows J L
Fernihough C
Freake J
Fry A
Gingell M
Hall C
Harper Owen I T
Hassall S
Heath G
Hillsley L K
Hobster B M
Holloway T
Hopkin O
Hopley G A D
Hoyland M J
Hubbart M
Jackson J W
Jewitt B T
Jones O
Kelsall A P
Last J
Lawton T
Lees J
Lewis M J
Lincoln J
Mackie A J
Marshall J E
Martin J S N
McBeath J
McCooke R J
Mellor T
Miller S
Morris D P
Moseley G R
Neve R P
Norton J
Park A
Parker K K
Peters J
Pigney C
Pink R
Poole D W M
Powell T
Reynolds A G
Robinson M
Roebuck J
Saunders R A
Shaw A J
Smith P
Strachan A
Thomas R
Thomson M A
Trueman A
Thurlow W J
Wakefield T
Walker S
Walker W
West J
Wilding A
Williams R
Wills J
Wilson G T

Riseholme College, University of Lincoln

Allen J W J
Baldock E
Barnard L B
Boyd M
Bradshaw-Smith W J
Brassett J
Burley N
Butcher W
Cockerill S J
Cromey J
Crossland T
Epton M
Eyre A
Gladding S
Hall C J
Hall N
HealyD
Jarvis E P J
Lovesey A T
Morris J
Nelstrop D
North O
Pate L G
Patterson L
Pearson-Green J
Redman J
Seneschall A J
Simons C
Smith D
Thompson G R
Thorndike S
Von Hidegh-Pichler G
Waters D
Watson O R
Willey S
Williamson A E
Williamson M T
Worrell S
Wray J T

Institute of Technology, Tralee

Bohannon M
Boyle P
Breen K
Burnell M
Cronin R
Crowley D
Cuddihy J
Devins L A
Doran O
Doyle J
Dunne D
Flanagan C
Foran E
Geary J
Goggin M
Hunt N
Kelleher K
Kilgarriff S
King N
Lehane P
Malone J
Marron M
McCarthy C
McMahon C
Murphy L
Murphy T
O'Callaghan T
O'Donovan T
O'Keeffe C
O'Keeffe D
O'Leary A F
O'Mahony K
O'Reilly A
O'Shea B
O'Sullivan B M
Rice S
Ring J P
Ryan C
Sayers J
Skehill A
Tiernan E

Re-admissions

Associate Member

Bence T M (Norfolk)

Deaths

Baguant K N (Mauritius)

Transfers

Member

Morgan S (Glocestershire)

Associate

Bourke I (Ireland)
Elliston P (East Sussex)
Kirkpatrick I W H (Scotland)
McCusker M (Essex)
Whatley T C (Worcestershire)
Worthington T F (Worcestershire)

Engineering Council

Congratulations to the following members who have qualified as Chartered Engineers and Engineering Technicians entitling them to use the designatory lettersCEn and EngTech after their names.

Registrations

CEng

Boshoff M C (Scotland)
Morgan S (Glocestershire)

EngTech

Delahunty P (Ireland)
Kinahan J (Ireland)
O'Gorman K (Ireland)

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

Bishop Burton College
York Road
Bishop Burton
Beverley
HU17 8QG

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

Easton College
Easton
Norwich
Norfolk
NR9 5DX

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

Harper Adams University
College
Newport
Shropshire,
TF10 8NB

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

Commercial members

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

AGCO Ltd
Stoneleigh, Abbey Park,
Kenilworth, Warwickshire
CV8 2TQ

BAGMA
Middleton House,
2 Main Road,
Middleton Cheney,
Banbury,
Oxon, OX17 2TN

Alvan Blanch Development
Co Ltd
Chelworth, Malmesbury
Wiltshire, SN16 9SG

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

Bomford Turner Limited
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Evesham
Worcestershire
WR11 5SW

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Carseview Road
Suttieside
Forfar, Angus,
DD8 3EE

Douglas Bomford Trust
The Bullock Building
University Way
Cranfield
Bedford MK43 0GH

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

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

EVENTS

IAgrE Branch Meetings and Events

West Midlands Branch
Tues 20 March 2012 19:00
'LIFE & TIMES AT JOHN DEERE OVER 40 YEARS' + BRANCH AGM
Speaker: Peter Leech, Regional Training Manager, Deere & Co
Venue: Stoneleigh Village Hall, Kenilworth, Warwickshire CV8 3DD
For further information and to book your place for this visit, contact the Branch Secretary, Michael Sheldon.
Tel: 01926 498900 Email: michaelcsheldon@yahoo.com

East Midlands Branch
Weds 4 April 2012 17:15
DAVID SHELTON SPORTS FIELD DRAINAGESYSTEMS & BRANCH AGM
Shelton has become leader in the design and manufacture of advanced equipment for draining sports fields and has won national and international awards. Their machines are exported worldwide. They have designed a number of new drainage techniques also which have been used to drain pitches for world cricket, football and rugby competitions. They have hire and contracting departments serving the UK.
There will be a machine demonstration at 17:15 followed by a presentation and light refreshments. The AGM will take place 19:00.
For information about the company please visit their website below.
For further information please contact Paul Skinner (details below).
Alternatively, contact the Branch Secretary: Sandy Donald (07977 521231 o r01526 320228, Email: sandy.donald@blankney.com)
Tel: 01205 480431 or 07941 604177
Email: paulskinner57@btinternet.com

Yorkshire Branch
Thurs 12 April 2012 19:30
BRANCH AGM AND CARLISLE BRAKES
Venue: Buckles Inn, Bilborough YO23 3PW (conveniently accessed from the A64/M1 Junction 45)
Brake components and their selection for a variety of applications.
For further details please contact the Branch Secretary: Mark Andrews
Tel: 0191 569 2380 Email: andrews_mark_a@cat.com

West Midlands Branch
Tues 17 April 2012 19:30
WATER AND IRRIGATION - TBC
For further information and to book your place for this visit, contact the Branch Secretary, Michael Sheldon.
Tel: 01926 498900 Email: michaelcsheldon@yahoo.com

South East Midlands Branch
Tues 24 April 2012 19:30
OFF-ROAD CAPABILITY - TURNING CRAFT INTO SCIENCE
Speaker: Jan Prins (Land Rover) and Dr James Brighton (Cranfield University)
Venue: Off-Road Dynamics Facility, Bldg 54, Cranfield University, Cranfield MK43 0AL
Joint Meeting with IMechE. This double presentation will touch on design of the off-road capability and demands of Land Rover vehicles and how the Off-road Dynamics Facility at Cranfield can be used to evaluate the designs. Perhaps we'll also see some of the 'Mars Rover' test facility as well!
For further information please contact the Branch Secretary, John Stafford.
Tel: 01525 402229 Email: john.stafford@silsoe-solutions.co.uk

East Midlands Branch
May 2012 - date tbc
FOOD TECHNOLOGY HOLBEACH
Venue: Miderva House, Holbeach Tech Park, Park Rd, Holbeach, Spalding PE12 7PT
For further information please contact David Pullen (details below).
Alternatively, contact the Branch Secretary: Sandy Donald (07977 521231 or01526 320228, Email: sandy.donald@blankney.com)
Tel: 01673 862278 or 07766 714650
Email: david.pullen9@btinternet.com

Wrekin Branch
Tues 8 May 2012
DEVELOPMENT OF THE REPLACEMENT VEHICLE FOR THE OLD 'SNATCH' LANDROVER? FORCE PROTECTION?
Venue: tbc
For further information please contact the (acting) Branch Secretary: Jim Loynes.
Tel: 07836 602750 Email: jloynes@harper-adams.ac.uk

Yorkshire Branch
Thurs 10 May 2012 19:30
YORKSHIRE WATERWAYS AND RIVERS
Speaker: Sylvia Jay, Ecologist
Venue: Buckles Inn, Bilborough YO23 3PW (conveniently accessed from the A64/M1 Junction 45)
Yorkshire waterways and rivers, otters, water voles and their management.
For further details please contact the Branch Secretary: Mark Andrews
Tel: 0191 569 2380 Email: andrews_mark_a@cat.com

Wrekin Branch
June/July
TBC
Venue: tbc
For further information please contact the (acting) Branch Secretary: Jim Loynes.
Tel: 07836 602750 Email: jloynes@harper-adams.ac.uk

Yorkshire Branch
Sun 17 June 2012
OPEN FARM SUNDAY
Venue: tba
For further details please contact the Branch Secretary: Mark Andrews.
Tel: 0191 569 2380 Email: andrews_mark_a@cat.com

Other Events:

Thurs 15 Mar 2012
Centre for Contemporary Agriculture
SOIL WATER MANAGEMENT
Venue: Easton College, Easton, Norwich, Norfolk NR9 5DX
Soil fertility and tillage systems, controlled traffic farming, abstraction licensing issues and improving irrigation efficiency are some of the practical topics to be explored at this event.
For further details contact Linda Fairclough at the Centre for Contemporary Agriculture.
Tel: 01603 592712 Email: l.fairclough@uea.ac.uk
Web: www.farminguk.com/news/Soil-and-water-experts-line-up-for-practical-event_22691.html

22 March 2012
IMechE
REDUCING FUEL COSTS IN FOOD PROCESSING
Venue: One Birdcage Walk, Westminster, London SW1H 9JJ
Discover methods for reducing fuel expenditure in your business; Hear from Defra what incentives are available for investing in alternative energy and energy efficiency; Find out how to utilise energy that is currently wasted; Gain an understanding of how new technology can be implemented to reduce costs to your business.
Tel: 020 7222 7899 Email: www.imeche.org/events/S1653

Weds 28 March 2012
IMechE
YOUNG ENGINEERS COMPETITION
Venue: Terex UK Ltd, Central Boulevard, Prologis Park, Coventry, CV6 4BX
Anyone wishing to enter a team or teams, please contact IAgrE Secretariat asap to obtain kit(s). See website for rules of the competition.
Tel: 01234 750876 Email: conferences@iagre.org
Web: www.iagre.org/careers/devcareeryecomp

Tues 3 April 2012
SEPA and SAC
VALUING ECOSYSTEMS: POLICY, ECONOMIC AND MANAGEMENT INTERACTIONS
Venue: John McIntyre Conference Centre, University of Edinburgh, Edinburgh EH16 5AY
This conference will seek to present not only the best possible scientific understanding of the complexities associated with the delivery of multiple ecosystem services but also provide a forum to raise and discuss what still needs to be done to have an ecosystem approach recognised and supported by land managers, researchers and policy makers.
This conference will be of interest to Land managers, researchers and policy makers.
For further information please contact: Karen McCracken, SAC.
Tel: 01292 525282 Email: karen.mccracken@sac.co.uk
Web: www.forestry.gov.uk/fr/INFD-8J9C5J

Tues 08 May 2012
Natural Capital Initiative
A CASE STUDY IN SUSTAINABLE AGRICULTURE
Speaker: Prof Ian Bateman (University of EA); Prof William Sutherland (Uni of Cambridge)
Venue: Charles Darwin House, London
Conference chaired by Dr Peter Costigan (Defra). This Natural Capital Initiative workshop is designed to encourage greater interdisciplinary working and knowledge exchange between economists and ecologists, with the goal of informing public policy. The chosen case study theme is sustainable agriculture.
Web: www.naturalcapitalinitiative.org.uk/ecologists-economists

9 May 2012
IMechE
HOSPITAL VENTILATION 2012
Venue: 1 Birdcage Walk, Westminster, London SW1H 9JJ
Web: events.imeche.org/EventView.aspx?code=S1663

Thu 10 May 2012
IAgrE
WEATHERING THE PERFECT STORM - WHO DO YOU WANT IN YOUR LIFEBOAT?
Venue: RASE Stoneleigh Park, Warwickshire, CV8 2LZ
Topics to be addressed: Government Priorities and Research - David Alvis (Technology Strategy Board); The Role of Soil & Water Management - Prof Dick Godwin (Harper Adams University College); Should there be room in the lifeboat for livestock? - Prof Christopher Wathes (Royal Veterinary College); People - the missing link - Jack Ward (City & Guilds). Further details will be published in due course.
Check the IAgrE website for details and on-line registration when available.
Tel: 01234 750876 Email: conferences@iagre.org

Mon 28 May 2012 to 02 June 2012
BALWOIS
FIFTH INTERNATIONAL CONFERENCE : BALWOIS 2012 ON WATER, CLIMATE AND ENVIRONMENT
Venue: Ohrid, Republic of Macedonia
Web: www.balwois.com/2012

08 June 2012 to 12 June 2012
CIGR-AgEng 2012
AGENG 2012: INTERNATIONAL CONFERENCE OF AGRICULTURAL ENGINEERING - AGRICULTURE & ENGINEERING FOR A HEALTHIER LIFE
Venue: Valencia, Spain
Contact: Florentino Juste, Instituto Valenciano de Investigaciones Agrarias
Tel: +34 963 424 010 Fax: +34 963 424 002
Email: juste_flo@gva.es Web: cigr.ageng2012.org

21 June 2012
IMechE
CLEANROOMS 2012
Venue: 1 Birdcage Walk, Westminster, London SW1H 9JJ
Web: events.imeche.org/EventView.aspx?EventID=1444

Sun 08 - Thurs 12 July 2012
CIGR
CIGR-AGENG 2012: INTERNATIONAL CONFERENCE OF AGRICULTURAL ENGINEERING
The Conference covers emerging research and new engineering solutions for food production and rural activities, as a means to enhance human well-being and promote social benefits.
The Conference is addressed to academia, industry, producers, manufacturers and service providers. PhD students, delegates of CIGR and EurAgEng, representatives of Developing Countries and Industry are especially encouraged to participate.
Web: http://www.cigr.ageng2012.org/index.php?go=inicio

Tues 4 to Weds 5 September 2012
RABDF
DAIRY EVENT & LIVESTOCK SHOW 2012
Venue: NEC Birmingham
Web: www.dairyevent.co.uk/

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

Conference 2012

Landwards
Agriculture • Horticulture • Forestry • Environment • Amenity

Weathering the Perfect Storm-
Who do you want in your lifeboat?

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

A CONFERENCE FOR ALL SCIENTISTS, ENGINEERS AND MANAGERS WITH AN INTEREST IN HOW OUR SECTOR WILL INTRODUCE INNOVATIONS TO COUNTERACT THE EFFECTS OF THE "PERFECT STORM"

A "perfect storm" of food shortages, scarce water and insufficient energy resources threaten to unleash public unrest, cross-border conflicts and mass migration as people flee from the worst-affected regions.

The IAgrE Landwards 2012 conference will respond to the *Foresight Report – The Future of Food and Farming,* by allowing representatives from various sections of the landbased sector to demonstrate the challenges they face in meeting the challenges of this perfect storm whilst focussing on the need for the sustainable intensification of agriculture.

The Conference will be of interest to all those involved with the management of:

- Energy resources
- Water resources
- Livestock
- Crop production

The conference, to be chaired by Dr David Llewellyn, Principal of Harper Adams University College, will feature noted speakers from across the industry including:

David Alvis (Technology Strategy Board)	Government Priorities and Research
Prof Dick Godwin (Harper Adams UC)	The Role of Soil and Water Management
Prof Christopher Wathes (Royal Veterinary College)	Should there be room in the lifeboat for livestock?
Jack Ward (City & Guilds)	People – the missing link.

The afternoon discussion session will allow delegates to discuss their response to the *Foresight Report* in the light of the day's presentations. This will be followed by a presentation of responses and the Chairman's summing up.

Conference kindly Sponsored by:

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***LANDWARDS*™2012**

Conference
May 10th
Venue:
Stoneleigh Park

For further information, please contact:
IAgrE Secretariat:
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01234 750876

For online booking, please visit
www.iagre.org
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