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Looking Landwards

NEW IAGRE CEO

Ian Adams to take over from Chris Whetnall

WAKEHAM'S MOMENTS

Tribute and memories of Geoffrey Wakeham

IAgrE Professional Journal www.iagre.org Volume 68, Number 1 Spring 2013

Biosystems Engineering

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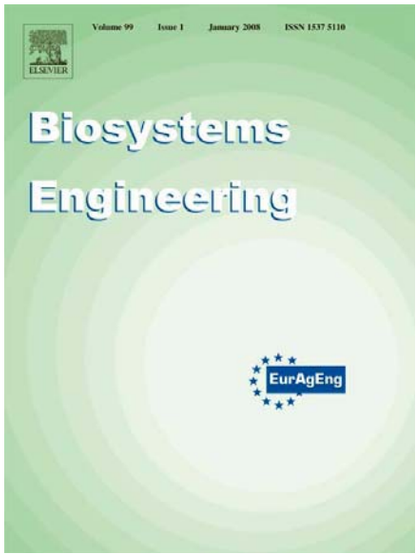

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The Managing Editor of ***Biosystems Engineering***, ***Dr Steve Parkin***, has kindly summarised some of the papers published in the last three issues which he thinks may be of interest to IAgrE members

Biosystems Engineering

Volume 113, Issue 3, November 2012, Pages 284-297

A distributed control framework for motion coordination of teams of autonomous agricultural vehicles

Stavros G. Vougioukas

University of California, Davis, CA, USA

A distributed control framework, intended to coordinate the motions of teams of autonomous agricultural vehicles operating in proximity is presented; master-slave and peer-to-peer operation modes are supported. Each vehicle has a nonlinear model predictive tracking controller, which keeps it as close as possible to the path demanded by the task, and coordinates and avoids collisions with nearby vehicles. Simulation experiments have shown that the minimisation of the tracking error along a finite horizon enabled the controller to track paths containing sharp turns, by applying appropriate steering well in advance of the turn. It has also been shown that vehicles can move in both operating modes, coordinate with nearby vehicles by altering their velocity profiles or the shapes of their paths, and avoid collisions.

Volume 113, Issue 4, December 2012, Pages 351-362

Classification of blueberry fruit and leaves based on spectral Signatures

Ce Yang, Won Suk Lee, Jeffrey G. Williamson

University of Florida, Gainesville, FL, USA

Spectral analysis can provide necessary wavelengths, for use in multispectral imaging that could be applied in yield estimation for blueberry. Samples of fruit and leaves were obtained from a commercial blueberry field in Waldo, Florida and an experimental field in Citra, Florida, USA in 2011. Samples were also collected in 2010 in Waldo. Seven representative southern high bush varieties were chosen for the experiment. Normalised indices were used as the candidate variables for classification. Each index was composed of the two wavelengths that had the greatest difference in reflectance between two classes. Classification tree, principal component analysis (PCA) and multinomial logistic regression (MNR) were conducted to develop classification models. An easy-to-use and low cost blueberry fruit detector could thus be developed using multispectral imaging.

Volume 114, Issue 1, January 2013, Pages 26-43

Microclimate and evapotranspiration of crops covered by agricultural screens: A review

Josef Tanny

Agricultural Research Organization, Volcani Center, Bet-Dagan, Israel

The use of porous screens to cover agricultural crops is constantly increasing. Screens are mainly used to reduce high radiation loads and wind speed, to protect the crop from hail storms and to minimise the invasion of insects thus allowing a significant reduction in pesticide application. Since screens impede the exchange rate of radiation, mass, heat and momentum between the crop and the atmosphere they modify the crop microclimate and its water requirements. The review shows that although screens reduce the transmission of total radiant energy, the effect on air temperature is complex, and depends on additional factors. Future research should focus on modelling the screenhouse-crop system under realistic conditions, using advanced simulation tools. High quality data sets from field studies will be needed to develop and validate such models.

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

Landwards
Agriculture • Horticulture • Forestry • Environment • Amenity

VOLUME 68 Number 1 2013

THIS ISSUE

EDITORIAL

Losing sight of the value of food

These are turning out to be confusing times - but surely also a period when UK farming reasserts and re-establishes its role as the pivotal provider of food, and meat in particular, to the UK consumer.

For months, worthy minds have been addressing the issues raised by the Foresight Report and the responsibility that agriculture has to provide sufficient food for the world population by 2050.

Then a counter-blast emerged from the Institution of Mechanical Engineers in January who published a report claiming that almost half the food produced was thrown away.

IMechE put the value of discarded food per year at £10bn, adding that three-quarters of vegetables grown were never used, either because they were rejected due to shape or size, or that pricing on bulk deals meant that consumer often bought more than they needed.

In statement that was to become startlingly relevant a few weeks later, the author of the report Dr Tim Fox said "We have lost our sense of the value of food".

How right he is - but it need not be the case.

This is an acute problem for the Western world which is literally sucking up and spitting out tonnes and tonnes of food that has been sown, grown and reared by a frustrated farming community for far too long.

And it took a scare about horsemeat, or more accurately issues of sourcing and food labelling, to concentrate the minds of the supermarkets in a way that the IMechE report, however sensational, had hardly registered with them.

The newspapers have been full of large adverts from the supermarket chains, seemingly putting their hands up, saying how they are sorry and must reform.

However, how to change the mindset of consumers who now spend 11% of household budget on food compared with over 20% post war is quite another challenge.

There are so many strands to this debate, not least how to substitute quality for quantity - or how to bring back the Sunday roast which can then be re-used and re-invented so that it feeds the family until Wednesday!

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

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LAMMA to move home

MACHINERY show LAMMA is to move to a bigger venue and will be held at the East of England showground, Peterborough, from 2014.

Demand for this year's event, which was held on January 16 and 17 at Newark and Nottinghamshire Showground for the final time, was so high that organisers have chosen to move to a bigger venue for next year's machinery showcase. LAMMA event director Cliff Preston said despite the change of venue, it will remain free to enter for visitors and will be bigger and better than ever.

He said, "We pride ourselves in being the UK's leading farm machinery equipment and services show and are dedicated to offering a show that can continue to develop and provide both exhibitors and visitors with the best possible experience. After a lot of discussion and consultation with the market, we've decided to make the move to do exactly that. The new location is ideal as it will both allow for the growth of the show and will also help us to overcome many challenges, specifically by making access easier for both exhibitors and visitors."

Ian Adams joins from the marine industry

IAgrE appoint new CEO

IAgrE has appointed Ian Adams as Chief Executive Designate to take over from current CEO Chris Whetnall who is retiring this summer.

The pair will work in tandem for two or three months to ensure a smooth transition.

Mr Adams (46) joins IAgrE from the marine industry where he has worked since 1985. He initially joined P & O Cruises as an Engineering Cadet, gaining an HND in Marine Engineering at the Warsash College of Maritime Studies in Hampshire.

After Warsash, he worked in the petrochemical industry, then for Deep Sea Seals and latterly for Hamworthy Pumps and Compressors. In 2001, he was appointed Secretary-General of The International Bunker Industry Association, becoming Chief Executive in 2009, representing the Association at a wide-range of marine organisations worldwide including the International Maritime Organisation (IMO) .

For family reasons he had to relinquish the post, and set up his own marine consultancy, IMA Marine Ltd providing research, corporate governance, training and consultancy to a wide-range of clients in the marine and engineering sector. He is a Fellow of the Institute of Marine Engineering, Science and Technology (IMarEST).

Ian is married with a son (12) and daughter (7).

Ian Adams (left) pictured with Chris Whetnall

New certificated training course launches at LAMMA

NEW Holland and Reaseheath College, have combined forces to provide unique training aimed at stimulating business within dealerships.

A new course, which is aimed at young people and has a high content of sales, marketing and engineering, was introduced to New Holland dealers at LAMMA 2013.

It is being offered to business minded 16 - 18 year-olds who are already employed or who would be keen to take on a parts sales and marketing related position within a dealership.

Trainees will study at Reaseheath College in Cheshire for 10 weeks over two years and will gain a Level 2 Diploma in Parts Sales and Marketing, accredited by the IMI (Institute of the Motor Industry). They will spend the rest of their time at their workplace.

The training is delivered on campus and online and will be offered predominantly in the winter months to avoid the busier farming season. Successful trainees will have the opportunity to progress to a Level 3 qualification.

The course has already had an enthusiastic take-up from dealers nationwide and will launch in September. It emphasises business skills including selling techniques, parts marketing, customer satisfaction and loyalty, marketing campaign implementation, stock management and logistics and sales promotion.

Trainees will also spend time in Reaseheath's high tech workshops, where they will assemble and identify parts for engines, transmissions and electrical and hydraulic systems. They will also learn about precision farming technology and about new, original and remanufactured parts. National and European visits to manufacturers, dealerships and allied businesses will also be part of the course.

Paolo Pierangelo, New Holland's Parts Sales and Marketing Director (UK & Republic of Ireland) explained, "As a company we want to help our dealers to grow their businesses. One of the best ways to achieve this is by encouraging them to up-skill their younger staff.

New Holland apprentices at Reaseheath

"Our dealers need enthusiastic sales and marketing people to increase their market share and their customers' loyalty. We are also hoping that our certificated course will attract enthusiastic young blood into the industry, helping to drive it forward."

Head of Reaseheath Engineering Peter Creagh said, "We have worked closely to come up with a unique package that meets the needs of industry and will hopefully encourage people to seek a career in the parts and marketing branch of agricultural engineering."

SOYL win IAgrE Ivel Award 2013

SOYL, of Newbury, Berkshire, who provide advice, services and support to growers using Precision Farming techniques, won the IAgrE Ivel Innovation award for its retro fit depth control system for cultivators.

The award presented to David Whattoff of SOYL by IAgrE President Andy Newbold at January's LAMMA show, is given annually to a product or innovation with the most positive impact on the environment.

The award was presented in recognition of SOYL's work developing variable rate cultivation systems for farmers which can help them reduce fuel costs.

Receiving the award from IAgrE President Andy Newbold, David Whatoff of SOYL said, "At SOYL we put a great deal of work and investment into developing new techniques in precision farming and we're extremely proud to have those efforts recognised by the judges. The variable rate cultivation system could be the next big thing for farmers in terms of precision farming."

OTHER AWARDS

A certificate of merit was also presented to Danny Crosbie of **D & J Crosbie Engineering** for the Crosbie trench former.

A special one-off award to celebrate IAgrE's 75th jubilee anniversary, went to **Richard Larrington Limited** for its crop transfer trailer. This is a new rear-mounted, cross-conveyor and trailer body lifting system for its Ejector trailer, which transforms into a multiple use crop and material handling trailer. It enables the rear of the trailer to be raised to four metres high and the crop is then pushed out of the back of the body by the Ejector trailer's sliding bulkhead.

"This is the first trailer to offer the idea of pushing loads upwards onto a discharge conveyor, while offering 20 tonnes capacity - far greater than any alternative trailer," said Richard.

The IAgrE Johnson New Holland Award was also presented to **Paul Quale** for his final year project at Harper Adams University. Paul, from the Isle of Man, achieved a BEng (Hons) in Engineering Design and Development. His project was the development and optimisation of a cascade aerator for a reed bed water filter.

The judges commented that it was an interesting piece of work very well tackled. Paul had managed to combine theoretical principles with the practical, exploring workable options in a resourceful way. Well worth the award.

The Johnson New Holland Trophy Award was created to encourage and recognise innovation by students of subjects related to the application of engineering to the land based sector.

L-R: IAgrE President, Andy Newbold, presents the Ivel Innovation Award to David Whatoff of SOYL

L-R: Paul Quale receives the IAgrE Johnson New Holland Award from Rob Alker

And further success for last year's winner

WINNING the Ivel Award at LAMMA last year was just the grass roots of success for County Durham based Fuel-Guard's diesel fuel decontaminator.

After winning the award, which is given for the product or innovation which has the most positive impact on the environment, the company found interest in the product escalated with interest and enquiries flooding in from around the world.

Ian Currie, a director of Fuel Guard, who was presented with the award at last year's LAMMA said, "I couldn't believe the level of interest in the decontaminator. It is such a simple, yet effective system which needs very little maintenance.

"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."

Following the success at last year's show Mr Currie has sold the distribution rights to the diesel fuel decontaminator to Interlube Systems, which has rebranded it the Fuel Klenze."I am very pleased to be associated with Interlube Systems which has the resources to distribute and support the product on a much larger scale," said Mr Currie.

ABOVE: Fuel Guard's Ian Currie and RIGHT: The Fuel Guard itself, now rebranded Fuel Klenze

Christine Tacon appointed as 'supermarket ombudsman'

IAgrE member, Christine Tacon has been named by the government as the first supermarket ombudsman.

The creation of the post was first recommended by the Competition Commission in 2008 to resolve disputes between supermarkets and suppliers.

As 'Groceries Code Adjudicator', she will have the power to fine misbehaving supermarkets, will hold the post for four years, and be responsible for policing the 'groceries supply code of practice', which was instituted under the last government in 2010 in order to ensure that the 10 biggest supermarket groups - with annual turnover of over £1bn each - did not abuse their relations with their suppliers.

The code of conduct came two years after the conclusion of a major two-year review of the supermarkets by the Competition Commission, which criticised the exclusivity arrangement often signed between the supermarket chains and their suppliers.

However, she will not officially take up the watchdog role until the Groceries Code Adjudicator Bill is passed by

Parliament later this year. In the meantime she will act as 'Adjudicator-Designate'.

"This is an incredibly important position in the retail groceries sector making sure that large supermarkets treat their suppliers fairly and lawfully," said Consumer and Competition Minister, Jo Swinson.

Christine Tacon ran the Co-Operative farm units for 11 years, prior to which she worked for Mars Confectionery, Vodafone and Anchor Foods. She currently holds a number of non-executive positions in the agriculture sector, including chair of the BBC's rural affairs advisory committee and is a Governor of Harper Adams University College.

Young are shunning 'boring' engineering

WOULD-be engineers are being discouraged by the idea that the industry is dull and stifled by rules.

The Institution for Structural Engineers wants to inspire more people into structural engineering, for which Britain has traditionally been world-renowned, to address declining interest in studying engineering.

Recent estimates suggest at least an additional 10,000 engineers are required every year to keep up with demand in the UK alone. In addition, an increasing proportion of students studying engineering in British universities are from overseas, with weakness in maths and science subjects being identified as a barrier to UK students.

Chris Wise of Expedition Engineering, who worked to create the London 2012 Velodrome and is a member of the Institution for Structural Engineers, suggests that young engineers are being discouraged by the idea that the industry is all about regulations and compliance, instead of being driven by design and enjoyment.

"Young people may be put off engineering because they can't see any role models," he says. "They need to be inspired, not lectured at. It would be great to change the mindset away from rules and formulae towards infinite possibility, amazing performance and life-enhancing achievement."

Wales' Millenium Centre, part of the Institution of Structural Engineers' photographic competiton designed to inspire young people into engineering

Institution President Professor John Nolan commented, "Engineers are the creators of tomorrow's world. Events such as the Olympics, which take place on the world stage and entail the showcasing of purpose built structures, inspire a much needed new generation of engineers."

Bioethanol and biodiesel crucial says NFU

BIODIESEL and bioethanol markets are both crucial to meeting our future energy needs and contribute an estimated £1billion to the UK economy, the NFU said recently.

It came following a series of meetings between the NFU's biofuel delegation and the key players in the industry, starting with Norman Baker, Secretary of State for Transport and culminating with a visit to bioethanol producers Ensus.

The NFU believes that the two markets must co-exist in order to drive improvements in yields, the environment and on farm efficiencies, and are vital for a sustainable, thriving local market for both wheat and animal feed.

NFU combinable crops board member Brett Askew said, "Ensus and Vivergo will provide an important domestic market for UK feed wheat, allowing farmers to hedge their sales and reduce the risk of being exposed to highly volatile commodity markets. This goes hand-in-hand with the biodiesel industry, which, already worth an estimated £600 million at the farm gate, has seen an increase in production of oil seed rape yields of around 25 per cent over the last 11 years, and is a growing market.

"The future of the two industries are linked together in a way that means government must take them seriously, and that is the point we made to the Secretary of State for Transport when we met with him. EU biofuels drive up sustainability standards around the world as any feedstock used in EU biofuel production must be certified sustainable.

"What we need to see from government is a solid commitment to biofuel production in the UK. Currently, the UK imports 80 per cent of the high protein animal feed used in livestock, pig and poultry production each year. The biofuel industry can become one of the most important markets for British agriculture.

"It has the potential for us to become more self-sufficient in high protein animal feed and import less from outside the UK, while providing an important floor in the market for our arable farmers."

Some reflections

CEO VIEW

FOURTEEN years ago, I took over the role of IAgrE CEO, (in effect a new role following on from a succession of Secretaries) ostensibly for a five year term. Previous incumbents had left the finances in a pretty good state considering the circumstances of falling membership numbers and no other sources of income.

At my interview, I remember taking pride in my origins as a dealer apprentice and made it clear that one of IAgrE's aims should be to increase our influence in that important area. (I remember also demonstrating how many other areas of technical expertise came under the bailiwick of IAgrE but alas, my attempts to make major inroads into some of these 'sectors' came to nought as I discovered there were a plethora of other societies, associations, institutes and institutions covering these areas).

On one of my first forays into the workings of the Engineering Council, I was quite shocked to see that IAgrE was one of a group of some 36 engineering institutions. Subsequently, when there have been mergers, new institutions seem to come out of the woodwork but apparently back in 1981 the EngC was looking after 54 institutions so there has been some consolidation.

In an ideal world, there would be one institution looking after all interests but it would seem that the 'big ones' think otherwise. Attempts at some consolidation back in 2004 (IIE, IEE and IMechE) came to nought due to "current differences in organisational structures and operational methods" although IIE and IEE did eventually grasp the nettle and get together. One can't help but think that it was the battle for the top job(s) that created the failure of the three way merger.

Clearly, if the 'big three' (ICE, IMechE and IET) did get together, there would be a good case for all other institutions to come together under the IET banner as their title (Institution of Engineering and Technology) did steal everyone else's clothes somewhat. I am sure a model allowing individual institution's identities to be maintained whist maximising the returns from a common set of overheads could be developed whilst still maintaining the prestigious London buildings we are all familiar with. But that would all need a nasty outbreak of common sense. In the meantime, we will, I hope, continue to maintain our independence and, in IAgrE's case, a personal relationship between the Secretariat and the Membership, something that economies of scale would not allow.

Despite occasional forays into the name change debate, throughout my time we have been pretty focussed on using the abbreviation IAgrE, rather than its constituent parts, together with the strap line ". . *the professional body for engineers, scientists, technologists and managers in agricultural and allied landbased industries, including forestry, food engineering and technology, amenity, renewable energy, horticulture and the environment.*"

The advent of the Society for the Environment opened up the possibilities for IAgrE to fish in the wider pool containing those outlined above. However, there is much yet to be done.

I have been lucky to have presided over a couple of major leaps for IAgrE, the acquisition of Biosystems Engineering following the demise of the Silsoe Research Institute (SRI) and the advent of the (currently) two Landbased Technician Accreditation schemes (LTA and LTAMEA) both of which have consolidated IAgrE's position within the sector. I cannot claim any credit for either of these - rather it has demonstrated our sector's ability to work together when it matters and consolidates the principle that the high powered researcher is dependent on the technician in the field to bring their concepts to reality. Without one, the other could not exist. IAgrE is a better place for having brought these two communities closer together.

Meeting so many of you who are as passionate as I am about our profession has been a privilege; there are many other adjectives which I could use to describe some of you - irascible, conscientious, brilliant, eccentric are just a few. I think that without exception (I say I think because the jury is still out on the member who still asks was I actually awake when the photo that has appeared at the top of this column was taken - he knows who he is!) I can call you both friends and colleagues.

And so to finish, may I just say to all the members, the secretariat staff and those working in the many organisations that IAgrE interfaces with, it has been a pleasure working with you and for you over the past fourteen years. Thank you all for having made this job such a pleasure.

And so I hand over the baton to Ian Adams. Please make his stewardship of IAgrE as pleasant as you have mine.

Christopher Whetnall

Engineering Council

SocEnv
Society for the Environment

Attention all aspiring professionals!

Professional Registration through IAgrE

Being a member of IAgrE is just part of being a professional. Adding a professional qualification to your name is a further important statement which sets you apart from others.

In addition to administering the Landbased Technician Accreditation schemes (LTA and LTA$_{MEA}$) on behalf of our sector, IAgrE has licences from the Society for the Environment and the Engineering Council to award the following professional qualifications to those who are suitably experienced and/or qualified:

Chartered Environmentalist	CEnv
Engineering Technician	EngTech
Incorporated Engineer	IEng
Chartered Engineer	CEng

One or more of these professional qualifications after your name:

- Establishes proven knowledge, experience and commitment to professional standards, and enhances employability.
- Demonstrates that you have been judged as being competent by your peers
- Establishes that your professional credentials are on a par with other Chartered professionals such as Chartered Scientists and Chartered Accountants
- Provides you with international recognition

To find out more about obtaining professional qualifications through IAgrE, email us at membership@iagre.org, visit our website or call our Membership department on 01234 750876

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LTA MEA LTA

Slight decrease in 2012 tractor sales say AEA

THE final count of registrations for road use of agricultural tractors (over 50hp) in the UK for 2012 was 13,951 units which represents a decrease of 1.0% on the 2011 level say the AEA.

The average size of unit sold in 2012 is provisionally put at 148hp which was 2.6% above the preceding year. Accordingly the total power sold increased 1.6% to nearly 2.1 billion hp.

As had been expected, the early months saw large levels of registrations, buoyed by a high level of confidence from the 2011 farming season when incomes had risen by around 20%, whilst there were also tax incentives to making investments which expired in spring. Thus the first half year saw an advance of over 4% on the equivalent period of the preceding year, whereas the second half saw a decline of some 8%.

AEA Economist Chris Evans said, "Since the turn of the millennium tractor unit registrations have varied between a low of just over 10,000 units and a high of over 17,000 and last year's figure was slightly above the average level. However, in terms of total power sold, this was some 13% above the average.

"Farming conditions are presently much more subdued than they were a year ago with incomes having slipped by as much as 20% by some calculations. The problems associated with establishing crops, plus the costs of feeding livestock have been compounded by reduced Single Payments and the prospects of tax bills from better times falling due. Accordingly, we cannot expect that the early months of the year will see the same level of activity of a year ago but farming has good future prospects and as long as the weather permits some degree of catch-up with crop establishment then investment in the appropriate farm equipment will remain a priority for the farming community."

The month-by-month comparison shows similarity between 2011 and 2012, with the peak month being March.

Chinese academic completes six months at Harper Adams

Researching robotic weeding

AN academic from South China Agricultural University has completed six months research into robotic weeding at Harper Adams University.

Dr Hu Lian has now returned to China where he is continuing to develop and test robotic systems for identifying and eliminating weeds.

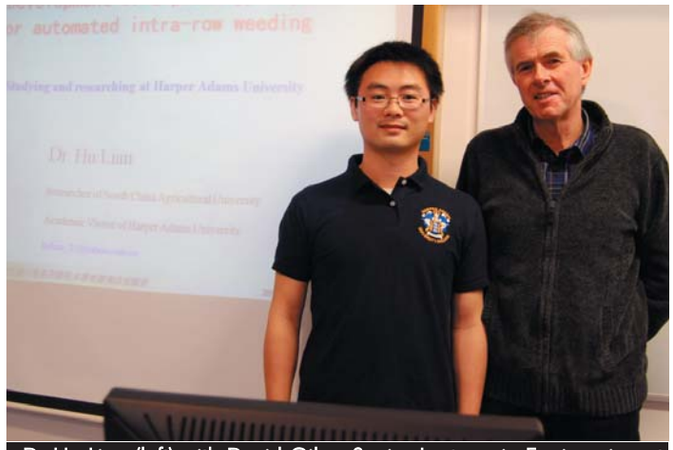
Currently, farmers usually deal with weeds by either spraying entire fields or by using farm workers to physically remove weeds by hand.

Researchers like Dr Hu hope that the development of agricultural robots will ultimately lead to the reduction in the amount of chemicals used, address the lack of labour in some parts of the world, be more cost effective, increase safety, and reduce the amount of energy used.

During his last day with the Engineering department at Harper Adams, Dr Hu, who spoke no English when he arrived on campus, gave a presentation of his work to lecturers, colleagues and friends.

The 28-year-old, who is an electronics engineer and has spent 10 years training in his specialist field, said, "It was very good being here - everybody has been very friendly.

"I would like to write two English papers about what I have done and do more detailed tests in the field."



Dr Hu Lian (left) with David Giles, Senior Lecturer in Engineering at Harper Adams

David Giles, Senior Lecturer in Engineering at Harper Adams, said, "In many parts of the world labour is becoming scarcer in the countryside and because labour is not available crops are failing.

"There is quite a pressing need to help develop the technology to replace labour as labour is not there to grow the food.

"It's a question of food security and such is the pressure to develop robotic systems to help grow food. It's a very important message."

He added, "We have been very lucky to have Hu Lian at the university. He is a very talented young man. He has done remarkably well in six months to have achieved what he has done.

"He was learning English for the first two months he was here and it is impressive how much he has come on.

"It's the first time we have had a research scientist from China here. This will help us develop stronger links with universities in China. We are hoping to encourage more people to come here from Beijing and South China universities and maybe some of our staff will travel over there."

New technical farming show set for October

A NEW technical farming event will be staged in October.

CropTec, organised by Briefing Media, publisher of *Farmers Guardian*, *Arable Farming* and *Dairy Farmer*, and owner of the LAMMA show, will take place on 30-31 October at the East of England Showground, Peterborough.

The two day event will have a key focus on technical knowledge and cost of production across all crops and forages. It will feature seminars covering the latest technical developments, research and advice relating to crop nutrition, crop protection, plant breeding and precision farming. The exhibition will also showcase cutting-edge spreading and spraying technology developments from leading machinery manufacturers and agronomy advice businesses.

Commenting on the launch of CropTec, event organiser Rupert Levy said the aim was to inform, educate and challenge visitors. "We want CropTec visitors to leave the event with new knowledge or ideas which will help them manage their businesses, enterprises or crops better. The core of CropTec will be a focus on knowledge exchange to help develop and promote profitable and sustainable farming."

Daniel Robertson chosen by panel

CLAAS Scholar announced

Daniel Robertson is congratulated by CLAAS UK CEO Trevor Tyrrell and Beate Kral, HR Manager from Corporate Human Resources at CLAAS KGaA

THE seventh CLAAS scholar for Agricultural Engineering has been announced as Harper Adams student, Daniel Robertson.

Daniel, from Aboyne, Aberdeenshire, is studying MEng (Hons) Agricultural Engineering at the university in Shropshire, a course that includes a masters' year.

The scholarship means that Daniel 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.

19-year-old Daniel, said, "It was an honour to be selected for the scholarship. I am good friends with some of the other interviewees, so knew that they were great candidates and it was going to be really competitive.

"That is why it was such a surprise when I was chosen. I cannot wait to start work in Germany in October."

Students Joseph Allin, Adam Montgomery and Alan Forde were also interviewed for the scholarship but narrowly missed out. They have been offered the opportunity to apply for other placements with the company.

Beate Kral, HR Manager from Corporate Human Resources at CLAAS KGaA mbH in Germany, was on the judging panel. She said, "We have seen four very much motivated and fantastic candidates. Even if we only could decide one for the scholarship, I am sure that these candidates have a very successful career way before themselves.

"Daniel on his part could persuade us by his personality and has shown that he has the drive and commitment to make use of the opportunities we provide within this program. We are happy to accompany Daniel on his way."

In selecting scholars, the company 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 Beate Kral; CLAAS UK Head of Human Resources, Jane Broomhall; Chief Executive, Trevor Tyrrell and Senior Lecturer and Placement Manager at Harper Adams, Richard Langley.

Launched in 2005 at the personal instigation of Helmut Claas, the CLAAS Scholarship is open to one second year student per year who is studying either the MEng/BEng (Hons) or BSc (Hons) Agricultural Engineering, or the BSc (Hons) Agricultural Engineering Marketing and Management courses at Harper Adams.

In seeking to establish a more diverse international community of young engineers, Dr Claas has recognised the need to encourage a wider spread of international engineers, especially in the area of field-testing. But with engineering centres around the World, it is also important that the teams are able to communicate using a universal language such as English.

SIMA innovation awards for John Deere

JOHN Deere has been awarded gold and silver for two innovations at February's SIMA show.

A gold medal was awarded to the multi-fuel tractor. This research machine features an engine that can be operated with different types of mineral or bio-based fuel, either individually or as blends, in a single tank.

Input sensors measure various properties of the fuel or blend in the fuel tank. Subsequently, the tractor's electronic control unit (ECU) optimises the engine settings to comply with Stage IIIB/Interim Tier 4 emissions standards. Finally, a model based software programme analyses signals from the emission output sensors to check the specified engine setting parameters.

A silver medal also went to the Remote Display Access (RDA). Due to be available from late 2013, this telematics solution allows remote access to the on-board GreenStar 2630 display unit.

This means the operator working on a tractor, combine harvester, self-propelled sprayer or forage harvester can receive immediate, real-time assistance from his fleet or farm manager, or from the dealer - for example, to get support for machine and implement set-up (including ISOBUS), optimisation and troubleshooting. With this innovative technology, potential machine downtime or insufficient use of the equipment in the field can be significantly reduced.

Professor Dr Peter Pickel and Christian Duesseldorf from Deere's European Technology Innovation Center (ETIC) and Etienne Vicariot from John Deere France Marketing

Both these new technologies have been developed by John Deere's European Technology Innovation Centre (ETIC) in Kaiserslautern, Germany, in close collaboration with the company's various research and development departments and external research partners.

IAgrE Guild of Agricultural Journalists Award

LAUNCHING in IAgrE's 75th jubilee year, the Guild of Agricultural Journalists Award will be made for the year's best article / broadcast on the application of engineering in the land based sector.

Members of the Guild will be invited to submit entries within a defined timescale. The judging panel of four will be made up of one Guild representative, Andy Newbold, a nominated Institution member, as well as one other. After the first year, the panel will include the previous year's winner.

The prize (£750 winner and £250 runner up) will be presented at the Guild reception at Cereals.

Oxford Farming Conference & RASE award Keenan

£10,000 prize fund for scientific approach to feeding

AN innovative, science-based approach to feeding dairy and beef cattle has won Keenan, the feed wagon manufacturers, the Oxford Farming Conference (OFC) and Royal Agricultural Society of England (RASE) 'Practice with Science' Award.

Sponsored by AB Agri, the prize money totals £10,000 which Gerard Keenan says the company will invest into furthering their research into feed efficiency and carbon footprinting - two of the fundamental challenges facing meat and milk producers.

The award was set up in 2010 to recognise applied scientific work that has resulted in valuable benefits to the agricultural industry, particularly in relation to on-farm practices.

Commenting on Keenan's application, John Giles, an Oxford Farming Conference Director, said, "The award is open to individual researchers and to businesses or institutions that have commissioned valuable research. The judges were impressed with Keenan's long-term investment into the Keenan Mech-fiber System which gives farmers a practical approach to improving their economic, environmental and animal health performance by adopting a precision feeding regime targeted at rumen efficiency

"Their development reach has a strong international dimension which was also of interest to the judges. Keenan has worked with local feed companies in many countries including developing countries like India and developed countries like the USA to adapt the Mech-fiber System to suit local farmers' feed availability and feeding practices."

The Keenan Mech-fiber System was established based on work conducted by David Colman on 1,086 dairy farms which showed that after using the system for one year, milk production increased by 1.74kg/cow/day from 0.64kg less feed, equating to up to 10% improvement in feed conversion efficiency. The net margin gain on these farms translated to the equivalent of 54p/day or an additional 2p/litre of milk.

Gerard Keenan, the son of the company's founder, added that commercial companies have to play their part in helping farmers tackle the challenges of producing 'more from less'. "British famers operate in an extremely volatile market with ever changing milk prices and feed costs", Gerard said. "The Keenan Mech-fiber System offers farmers greater control over their feed efficiency through the simple management of the physical structure of the total mix ration (TMR).

Keenan Mech-fibre system

"We are thrilled that our work has been recognised by an award of this standing."

OFC's John Giles made the point that, "This award addresses a fundamental need for agriculture because it bridges the big gap between the science-driven innovation farmers need on the ground and the 'leading edge science' work being done in research institutions.

"Keenan was selected because their work has added direct and measurable benefits to ordinary farmers not only in the UK but throughout the world."

British farmers operate in an extremely volatile market with ever changing milk prices and feed costs

Gerard Keenan, son of company founder

•AGCO CEO Martin Richenhagen (right) has been announced as one of the speakers at the 2013 AEA Conference to be held at the Institute of Civil Engineers, One Great George Street, London on 9 April.

Also speaking on the business programme is Phil Bicknell, chief economist at the National Farmers Union.

In contrast, the lunchtime speaker is to be Gerald Ratner, former boss of the Ratners jewellry chain, famous, or infamous, for his 'total crap' speech to the Institute of Directors Conference in 1991. Ratner now runs an export manufacturing company based in India and the online jeweller business Gerald Online.

Details *www.aea.uk.com*

BAGMA launches management course

THE British Agricultural and Garden Machinery Association (BAGMA) has joined forces with Coventry University and its corporate development and education arm Acua Limited to launch its first ever university accredited management development programme for members

BAGMA, a specialist division of the British Independent Retailers Association (bira), has worked with Acua to design a programme which will help equip members with the leadership skills needed to sustain and drive their businesses forward. Over the next nine months members from agricultural businesses across the UK will work towards an award, certificate or diploma in management and leadership accredited by the Chartered Management Institute (CMI).


L-R: Robyn Taylor (R T Machinery), John Palmer (Anglia Harvesters), Adam Wyatt (BAGMA), Clive Chapman (Bavenhill Mechanics), Jeannine Mortlock (md of Acua Limited) and Elliot Prior (Masons Kings)

The programmes will be made up of workshops and units which encompass dealer service and performance management, leadership, financial control and marketing, and will be held at Coventry University and BAGMA's head office in Banbury, Oxfordshire.

Adam Wyatt, technical and training development manager at BAGMA, said the launch of the programme was a result of a need identified by members to upskill their workforces. "We represent around 650 members and we identified that many of them had people in management positions, or have been earmarked as managers in years to come, that have had very little or no leadership and management training before," he said.

Among the first to sign up to the programme is Elliot Prior, of Devon-based agricultural machinery dealership Masons Kings. The 21-year-old said, "This is a fantastic opportunity for me to get an insight into management. At the moment I'm a project administrator but over time will be progressing up the ranks in the family business."

Big boys toys

IAgrE President, ANDY NEWBOLD, ponders how best to engage the young in agricultural engineering

HAVING just returned from a work trip through the American Midwest, it struck me again how much technology is a fundamental part of our lives.

The trusty $60 sat-nav from Walmart took us, with barely a hitch over some 1,500 miles of Illinois, Iowa, Minnesota, Wisconsin and back to Illinois. When we landed in Chicago it was around -18°C, so cold the air was 'crackling' in my nostrils (you will know if this has happened to you!) Car heaters become essential in this weather.

Through the plains of Iowa and the corn lands of Illinois, although under a blanket of snow at the end of February, within a month, many of these areas will be busy with spring planting, using precision farming technology. In fact we saw a field cultivated last 'fall' by the farmer's 15-year-old daughter, with a 300hp tractor with autosteer. Her first question was "Dad where's the radio?"

We are immersed in technology and as agricultural engineers, should be proud that we are part of this.

I often hear the cry of 'we need to engage young people in agricultural engineering'. I could not agree more. What is a much more interesting question though is how?

Last autumn I spent a couple of days manning the IAgrE stand at a local careers fair. To my dismay this was 'twixt the hairdressing & beauty 'faculty' of a college and the food technology department of another. Still after two days I was well fed and my nails were lovely!

On day one I barely saw a young person and had to be very proactive to get people onto the stand and raise some enthusiasm. Your humble correspondent returned home a little disheartened, however a plan emerged . . .

Day two dawned with a Lego Technic tractor and forestry trailer in tow, freshly dusted as centerpiece of the stand. Well what a difference a day makes. Hordes of 13 year olds (mainly boys admittedly) stopped by to play with the lego, discuss their own models and there was a great chance to make the link to agricultural engineering. This got me thinking . . .

Several years ago I spent some time with undergraduate engineers at Harper Adams and discussed why they had chosen this career. Answers ranged from liking tractors, to growing up on farms, working on farms etc. This led to the next question, what toys did you play with? Of course it was Britains farm models and Lego technic. A straw poll of more senior engineers above say 45 years old saw the Lego replaced in favour of Meccano. Perhaps innovative play leads to innovative work?

Yours truly is still working his way through the several thousand parts and 5 instruction manuals necessary to construct the Lego Technic Unimog which Santa kindly delivered at Christmas. 12 hours in and 25% complete so far!

At Geoffrey Wakeham's funeral last year, it was passed on that his grandson in New Zealand said 'there should be a statue for Grandad'. We understand that the young man in question has been busy with his lego doing just that! Geoffrey would have loved it.

AS we move into 2013 I would like to take the opportunity to welcome Ian Adams as Chief Executive Designate and to thank Chris Whetnall for his years of support for the Institution.

His wisdom and guidance has served us well and I would also like to personally thank Chris for his patience and forbearance with a feckless president.

GEOFFREY WAKEHAM

I WAS lucky to spend some time with Geoffrey last autumn and took the opportunity to tell him a few of the ways in which he had unknowingly influenced my life. In his words "a eulogy is no good if you are dead".

Firstly, and several of my B.Eng. colleagues will attest to this, I have a heightened sense of timeliness. You only needed to be late to one of Geoffrey's lectures to experience the locked door and the shouts of 'go away*, come back on time next week' to mend your ways (* often more Anglo Saxon than this!).

Correspondence - Geoffrey was a great correspondent, he wrote emails at length on a vast range of subjects, with no taboos, in fact religion and politics were positively encouraged. Part of the pleasure was not knowing where this would lead!

Finally and most importantly for me, he was for people. Geoffrey took a great interest in me as a very naive Cumbrian farmer's son as an undergraduate and over time as our friendship developed both personally and professionally. Many peoples' lives have been enriched by Geoffrey's involvement and we are poorer for the sad loss.

See pages 22-23 for further tributes to Geoffrey Wakeham

. . Perhaps innovative play leads to innovative work?"

1938 - 2013 75 years of promoting Professionalism

75 years ago, the formation of IAgrE was the subject of press criticism - and the lack of a chosen preferred title.

Despite these reservations, the inauguration of IAgrE went ahead on 25 February 1938.

Founder-President, Lt-Col Johnson (seated centre) with a group of past presidents pictured in the early 1960s. Back row (l-r) D P Ransome, D R Bomford, W J Nolan, F E Rowland and J M Chambers. Seated C B Chartres, Lt Col Johnson and Dr C Davies

FOUNDED in 1938 by a group of visionary agriculturalists and engineers, IAgrE is the professional body for engineers, scientists, technologists and managers in agricultural and allied land-based industries and institutions.

From its early days the Institution was aware of the need in the UK for education and training in agricultural engineering and IAgrE was the first non chartered engineering Institution to be nominated and authorised for all three registers of the Engineering Council: Chartered Engineer, Incorporated Engineer and Engineering Technician.

But the formation of the Institution was not without its problems and critics. When the formation was first mooted, the long-established magazine *Farm Implement and Machinery Review* scorned the initiative.

In an editorial in early May 1938, published just three weeks before the inauguration it wrote *". . . to form an institution of agricultural engineering would do a disservice to agricultural engineering itself".*

The magazine went on to suggest that a focus on the word engineering would not necessarily put the Institution on a par with those organisations representing, for instance civil or electrical engineering - on the basis that it would embrace those people without the necessary engineering qualifications.

"We suggest that the formation of a power farming association might be far more appropriate".

Notwithstanding this press opposition, the inauguration of the Institution went ahead on 25th February, 1938 at the offices of the Society of Motor Manufacturers and Traders in London.

The original adopted title was the Institution of British Agricultural Engineers, not for any nationalistic reasons, but because the title, the Institution of Agricultural Engineers, had already been registered by another body, who were not willing to relinquish it despite having made no use of the title.

Duke of Edinburgh attends Douglas Bomford Lecture at Silsoe in 1979. Pictured (l to r) are T Sherwen (chairman Douglas Bomford Trust), J C Turner and K Axford

The first President was Lt Col Philip Johnson, chairman of Roadless Traction Ltd, and subsequently the preferred IAgrE title became available.

Perhaps *Farm Implement and Machinery Review*'s misgivings might have held water in the early days, but as the Institution grew through the war years and beyond, the key purpose and rationale for the formation of IAgrE came into focus during the 1950s.

In 1951, a National Diploma in Agricultural Engineering was established and ten years later, when prompted by Government, IAgrE joined with the AEA and AMTDA (now BAGMA) to petition for the formation of a National College of Agricultural Engineering. The NCAE opened its doors in London in 1962 before moving to Silsoe.

In the 1970s, NCAE became part of the Cranfield Institute of Technology, before moving out of the Silsoe site in 2007 to become fully merged with Cranfield University.

"HUGE changes have taken place in agriculture since IAgrE's beginning, not only in the machines and equipment used by farmers and growers but also in the concept of 'engineering' itself," said Chris Whetnall IAgrE's CEO.

"The spectrum of agricultural engineering has grown enormously to embrace not

IAgrE Presidents and Past Presidents pictured in 1987. Standing (l to r) J C Turner, J C Weeks, Dr B D Witney', B A May, J G Siach, G E E Tapp (Sectetary IAgrE). Seated: C culpin, T Sherwen, M Mathews, J Chambers, J A C Gibb and T C D Manby

only tractors and farm machinery but also the control of soil and water on farms, the management of the environment for the production of livestock and an ever increasing variety of crops, processing, storage and packaging of crops, disposal or re-use of waste production, design and layout of farm buildings and their equipment and the health and safety of people working in the landbased industries."

But what of the challenges ahead?

IAgrE see the skills shortage in the UK as one of the greatest challenges. The need for practically focussed engineers and engineering technicians is growing.

The decline of engineering apprenticeships and other technological advances has reduced the demand for traditional workshop skills but engineers and technicians are more vital than ever.

And they will need to be equipped with the knowledge and skills to service and repair the ever increasing complexity and sophistication of agricultural machinery.

There also needs to be a genuine parity of esteem.

"The right prominence needs to be given to engineering technicians alongside chartered and incorporated engineers. Engineering and technology must be key components of any strategy leading to a sustainable future," said Mr Whetnall.

AS in the past IAgrE is committed to promoting industry professionalism and today administers the Landbased Technician Accreditation Schemes (LTA) on behalf of the landbased engineering sector.

The independently accredited schemes provide a common means of benchmarking, monitoring and assessing the competence of technicians.

There are formidable agricultural challenges ahead, as outlined in the Government's '*Global Food and Farming Futures*' which was a two year study involving 400 experts from 35 countries published by the government-backed think-tank, Foresight .

Sustainable intensification of agriculture is needed and IAgrE's official response to the report: "*Agricultural Engineering: a key discipline enabling agriculture to deliver global food security*", stresses that agricultural engineering needs to play a significant role in delivering this goal.

The UK response to global food security will be much more powerful if agricultural engineering is recognised as a critical component, capable of breaking down traditional barriers and enhancing multidisciplinary approaches to the challenges.

One thing that is certain is the demand for food is increasing and the demand for further sophisticated machinery will match it - and if agricultural engineers do not have the answer they will certainly be part of the catalyst for change.

Which is why IAgrE spends much of its time and effort looking forward - and in this milestone 75th Anniversary Year has partnered with a specialist publisher of scientific fiction to promote a science fiction competition based around the quest of food in the coming years.

THE Bullock Building, IAgrE's modern headquarters on the Cranfield University campus

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Secretary: **Paul Miller** Administrator: **Elizabeth Stephens**

Activities of the DOUGLAS BOMFORD TRUST

An update

STUDENTSHIP AWARDS

ONE of the ways in which The Douglas Bomford Trust seeks to support undergraduate students on courses relevant to agricultural engineering is via studentship awards.

These awards aim at encouraging students to gain the maximum benefit from their undergraduate studies by providing access to additional courses and materials (e.g. computers and software, apparatus and / or reference material) that will enhance their studies and the subsequent contribution that they can make to the agricultural engineering profession. Awards are typically for one year with sums of between £1,000 and £1,500 but can be up to £2,000 in exceptional circumstances and for smaller amounts when appropriate. Awards are made on a competitive basis.

All applicants must be student members of The Institution and the selection process is based on:

a) **The submission of a written application comprising a brief case for receiving the award and a CV;**

b) **The short-listing of applicants at each establishment;**

c) **An interview of all short-listed candidates with a panel that comprises at least one Douglas Bomford trustee, a member of academic staff and the secretary of The Trust.**

The interview provides candidates with experience of presenting a case, in this case for funding, to a panel and supporting this case when discussed with the panel.

Typically five to eight awards are made each year. For the 2012/13 academic year, a total of twenty six applications were received and five awards were made to students at Harper Adams University as follows:

- **Jonathan Bradbeer** - MEng Agricultural Engineering - *Final year*
- **Thomas Lindley** - MEng Agricultural Engineering - *2nd year*
- **Adam Montgomery** - MEng Agricultural Engineering - *2nd year*
- **Thomas Rushton** - MEng Off Road Vehicle Design - *Final year*
- **William Alexander Skittery** - MEng Agricultural Engineering - *4th year*

Awards to the Harper Adams University students were presented at a ceremony held on 13th February 2013 and the photograph shows the award winners with Paul Miller, Secretary to The Trust (extreme left) and David White of the Engineering Department at Harper Adams University (extreme right).


The Douglas Bomford Trust group

While most studentship awards to date have been made to those studying at Harper Adams University, The Trust is keen to extend the scheme to a wider range of courses and colleges - contact the secretary for more information.

Sponsored student project work

THE Douglas Bomford Trust is jointly supporting a project at Cranfield University to develop techniques for monitoring multiple greenhouse gas emissions from soils.

Precise measurements of greenhouse gas emissions are increasingly needed across the environmental sector from monitoring water and waste treatment processes to work attributing gas emissions to particular sources and to aid the development of improved emission factors for modelling. Research has suggested that levels of atmospheric carbon dioxide currently at around 300 ppm may increase to 450 to 1100 ppm by the year 2100 increasing the importance of understanding the role that soils play in the whole carbon cycle. N2O and methane have received less attention but are important mainly because their greenhouse gas effect is very much higher (300 times in the case of N2O) than carbon dioxide.

The project aims to develop generic methods for the near continuous measurement of the fluxes and stable-isotope signatures of multiple trace gases emitted from environmental systems. The work is being undertaken by Matthew Downie as part of an MPhil / PhD project supervised by Guy Kirk and Mark Kibblewhite from Cranfield University and Sam Barker from Sercon Ltd who specialise in the design, manufacture and support of Isotope Ratio Mass Spectrometers and their associated sample preparation systems.

Funding comes from the EPSRC, Sercon Ltd (as cash and in-kind) and The Douglas Bomford Trust. The project is using a field laboratory at Cranfield, construction of which was supported by the Royal Society/Wolfson Foundation and University funds (see *Figs 1* and *2*).

The laboratory allows the continuous measurement of the fluxes and isotope compositions of gas emissions from 24 intact soil monoliths (lysimeters) under controlled field conditions. Pneumatically-operated gas flux chambers are fitted over the lysimeters. Gases accumulated in the chambers during a sampling period are passed through a continuous loop to an isotope ratio mass spectrometer housed in an adjacent instrument building.

The system software controls the opening and closing of the individual chambers and the direction of the gas flow as well as the gas analysis process. The lysimeters are arranged in six groups of four around six manholes to which they are connected at different depths. The manholes contain manifolds to deliver gases to the analytical instruments, collectors for the lysimeter drainage and connections for the flux chamber pneumatics, soil heating and irrigation systems.


Fig. 1. The Wolfson laboratory prior to the installation of the gas flux chambers showing the instrumentation building, the buried lysimeters and manholes containing connections to the lysimeters, gas lines and control systems.

The soil monoliths were obtained intact during the summer of 2010 and are of two soil types: a well-drained coarse loam formerly under bracken and grass and a poorly drained, seasonally water-logged loamy soil over clay that was originally pasture. All lysimeters currently have a grass surface.

Matthew's work to date, covering the first year of his studies, has involved:

a) Conducting a literature review of plant-soil-atmosphere carbon dioxide fluxes and their measurement;

b) Becoming familiar with the facilities of the Wolfson Laboratory and undertaking detail training in mass spectrometry;

c) The development of methods for sampling from the chambers and for data analysis

d) Making carbon dioxide flux and isotope measurements so as to characterise the system and develop approaches.


Figure 2. Gas flux chambers fitted to the lysimeters with lids open. The lids are closed in turn for gas flux measurements with air circulated through them to an isotope mass spectrometer in the instrument building.

Looking Landwards

COMMEMORATING IAgrE's 75th Anniversary, the *Looking Landwards* sci-fi short story competition, held in association with NewCon Press, has now been judged and the winners decided.

Starting this issue *Landwards* magazine will be publishing the winning submissions throughout 2013, leading up to a very special entry by the late Geoffrey Wakeham in the Winter issue.

The final results were:

- Winner: *'Wheat'*, by **Kevin Burke**
- 2nd: *'Landward'*, by **Den Patrick**
- 3rd: *'Healing the Soil'*, by **Daniel Ausema.**

And in the Honorable Mentions department:

- 4th: *'The Drovers'*, by **David Turnbull**
- 5th: *'Flight of the Beez'*, by **Renee Stern**
- 6th: *'Miracles of the Modern Age'*, by **Allen Ashley**

Looking Landwards anthology publication to be released by NewCon Press later in the year

Healing the Soil

by Daniel Ausema,
Fort Collins, USA

THE concrete echoed their footsteps as Liam followed the inspector up the dry fish run. A few stray runners crept over the edge, as if searching for water. *Soon*, he wanted to tell the plants. *There'll be water for you soon*.

Overhead, the farm's sail snapped as the wind shifted. Its material strained in the breeze, charging the harvesters that waited only for the inspector's word.

"You've made good progress, since last time." The inspector spoke over his shoulder without slowing. A shovel rested against that shoulder, so light it bounced with each step. "This was a bad site, right?"

"One of the worst." Liam looked across the fields, remembered what it looked like when he started. Rusted buildings, broken down equipment left to rot on asphalt, chemical-scalded weeds. "Industrial refuse of every kind you can imagine. It's taken a lot of work. The first crops we planted couldn't even grow. We had to breed new strains."

"So this is second generation?" The inspector lifted a fallen blade of the grass with his foot.

"Oh, we're up to the fourth by now. They keep sending us better seedlines. This strain of miscanthus works so fast, we decided to get everything set up: these runs, the pumps and filters. I know you'll find the soil ready."

Liam forced himself to stop talking so he wouldn't sound desperate - no use making the inspector despise him. They'd worked so hard to clean up the site, though. Growing for ethanol was fine, but as wind sails and other energy sources became more efficient, demand for ethanol dropped, year after year. He wasn't sure how much longer they could make it, if they didn't make the switch to food. Power things how you would, a growing population always needed food.

"Well, as far as that . . ." The inspector left the fish run and crouched beside the row of grasses.

Liam wiped his hands on his shirt, leaving it damp with sweat. "Yes?"

"I've looked over the reports from the bio-gas plant. Your crops still have pretty high numbers." The inspector tapped the device in his hand, as if he had the figures displayed.

Liam was fully familiar with the reports. They loved his crops at the plant, because they could harvest out the chemicals, sell them for extra profit. Not that they ever paid him more because of it. Yet more reason to make the jump. If allowed.

"Well, that's this new strain for you. Just shows how bad it was. The current crop is pulling up the last of the contaminants, so it looks high. One more harvest . . ." Liam left the rest unsaid, waiting to see what the soil sample would show.

The inspector scooped up a vial of soil from the surface, then dug down for samples from ten centimetres deep and a full meter down.

"I can fill it in, if you need a break." Liam took the shovel from the inspector's hands, though he didn't seem winded. The shovel was as light as it had looked, but sturdy and easy to use.

Once the inspector had his device set up to analyse the soil, they headed to another location for more samples. After digging up three more sites, the first analyses were finished. The inspector gathered up the device without glancing at the screen. Liam squeezed his fist around the old-fashioned coin in his pocket so he wouldn't demand to see the analysis now.

. . *Soon*, he wanted to tell the plants. *There'll be water for you soon*.

The wait at each of the locations felt interminable. Liam reminded himself that a generation ago it would have taken weeks, sending the samples to a lab, waiting for them to respond. The reminder didn't help. He was forced to listen to the distant hum and snap of the sail, the wind-blown grass, the electric cars that zipped along the nearby highway. Would adding fish change those noises? And the complementary food crops they would plant, feeding and feeding off those fish . . . might they attract animals that would add their own sounds? At this point he welcomed the thought of having to protect his crops from rodent thieves, as long as it meant he had a food crop worth protecting.

"I have to tell you," the inspector said as he finished the last analysis, "some of the benchmarks have changed."

"What . . ." Liam felt his heart skip. "What will that mean, for us?"

The inspector looked at the screen. "Well, looks like the soil passes."

Liam let out his breath. They'd done their own tests, so he'd expected as much, but the official samples were what counted.

"Still, we'll need a clean report from the gas plant."

"What? We've never had to . . ."

The inspector nodded.

Liam wished he could rage at this setback - another delay, when they were so close? - but he held himself still.

"Even so, with what I see here, I'm confident you'll get that report. One more season of miscanthus should do it. So I'm approving you to begin stocking the fish runs."

Liam closed his eyes and imagined the farm running with water, filled with fish. At least they could take one step toward being a true food farm. He opened his eyes. "Thank you. We'll begin immediately."

As a glider soared in low toward the nearby airport, Liam kicked a rock along the dry concrete run. Fish, yes, fish would be a good start.

Towards sustainable land management in Britain

Bob Evans presents a personal view of the issues surrounding soil erosion in UK farmland, and suggests a number of remedies.

AFTER the last wet autumn and winter (1968/69) on a par with this one, when land was left bare because winter cereals could not be drilled and root crops could only be harvested with difficulty, the Strutt Report - '*Modern Farming and the Soil*' - was written. I know of farms on the Chalky Boulder Clay west of Cambridge that have not grown sugar beet since then because of the difficulties of harvesting the beet and the ensuing damage to soil structure.

The Strutt Report considered erosion and runoff from the land was not a problem. The loss of organic matter was. Since then organic matter of arable soils has continued to decline and soils have become more compact.

Also, agricultural machinery has got much bigger and many field boundaries have been removed to enable the machinery to be used. And the use of pesticides is greater so that wheelings are used much more than they were then.

Most erosion nowadays occurs in wheelings (tramlines) in crops and ruts left after a wet harvest. However, even though this has been a very difficult season I will be surprised if another Strutt Report is commissioned to assess how we are managing our soils.

I moved to Cambridge in 1968 and saw sufficient water erosion in that winter and succeeding years that I began to collect information on its extent and severity.

In those days, if I was asked where could a student investigate water erosion in a farmer's field I could not have told them of a field where I knew erosion occurred in most years. Now that is not a problem and I know of localities where fields erode most years. This winter wash and small rills can be seen everywhere.

> “ . . nowadays machines can go on the land in almost any conditions ”

Until fairly recently it was the impact of erosion on the soil that was the major factor considered, thus how much soil was lost and the consequences for crop productivity. However, in the UK erosion may be extensive in some localities but often it is not severe and the farmer understandably ignores it. Only if a gully occurs and has to be filled in, which is usually rapidly done, does erosion concern the farmer. But that lack of concern is not felt by the householders flooded by runoff from the field nor by the water companies who have to treat the water to remove pesticides and nutrients. Sediment in water makes the water more difficult to treat when it is abstracted from rivers for distribution to householders and some pesticides cannot be removed easily, or not at all in the case of metaldehyde (slug pellets) or some pesticides at high concentrations. Some pesticides have already been banned at least partly because of their presence in water courses. The loss of others is threatened. IPU, now banned, appeared in the River Cherwell at Banbury at levels above those permitted (1 part in a billion) many times in the winter months and between 1996-2006 the herbicides chlorotoluron, propyzamide, mecoprop and simazine occurred on average 2-4 times a year above permitted concentrations. Nitrate and phosphate also occur above permitted (nitrate) or advisory (phosphate) levels, although a major source of phosphate is also from small sewage treatment works.

Modern agriculture has gone down a particular route - improved crops, high use of fertilisers and pesticides, large machinery - because that is what governments and the agriculture industry wanted.

This was done to produce as much food as cheaply as possible, an understandable aim, but without, it appears, much thought of the impacts on land and water.

I can remember in the late 1970s and early 1980s when I went to agricultural shows to tell farmers about the (then) Soil Survey's soil maps, asking my fellow exhibitors from the agricultural chemical industry if they knew what happened to their products in the field and I never got a satisfactory answer, at best the information was gained in the laboratory.

There was little known about the impacts on plants, animals and fishes outside the cropped field. That still seems to be the case. It appears the companies cannot answer these questions.

I would hazard a guess that many pesticides persist for longer in the natural environment than they do in the laboratory.

Farmers and their workers have done all that is asked of them with regard to using pesticides as safely as possible - the Voluntary Initiative and Metaldehyde Stewardship schemes come to mind - but pesticides are still being found in water courses because of runoff from the land and flow through field drains.

WHEN I first went mapping soils with colleagues in the Fens and East Anglia in the late 1960s and early 1970s although it was rare to see beasts in the field, they were there in large numbers in sheds. Their manure was returned to the land.

Agricultural machinery was smaller and there were many field boundaries still to be removed. Those field boundaries were often in sensible places, where soils changed or slopes steepened (that encouraged runoff) or ditches that had safely conveyed water down valley floors. And there were no outdoor pigs. Runoff and erosion were much less common than now.

Nowadays machines can go on land in almost any conditions. In late February this year when soils were still wet enormous tracked tractors were drawing a plough across a harvested sugar beet field or attempting (it looked to be getting stuck!) to drill and roll a cereal field and most winter cereal and oilseed rape fields had been sprayed leaving deep ruts across the field.

Last year in the very wet spring, in the rain, I saw a compacted and saturated former outdoor pig field being spread with (presumably) pig manure. And this February in Suffolk every dip in a road adjacent to outdoor pig fields was flooded. Since the rain set in last April runoff from outdoor pig fields has flooded roads in Norfolk, in one place on a blind bend at least four attempts have been made to rectify the problem, at some cost to the County Council Highways.

Most fields that I have seen drilled last autumn to oilseed rape or winter cereals show signs of wash or small rills, often to the edge of fields. I know that Anglian Water is recording very high concentrations of metaldehyde in rivers in East Anglia from which it takes water.

Agriculture is now on a course in which it may not be able to comply with regulations, particularly with regard to the concentrations of nutrients and pesticides allowed in water supplies and keeping the land in Good Agricultural and Environmental Condition.

Either regulations or how the land is farmed will have to change. We may argue about the levels set for nutrients and pesticides in water but it appears they will not be changed and the farming community will have to accept them and try to meet them. Presently then it seems more likely that it will be farming that will have to change.

Agricultural engineers, researchers and agronomists will be vital in helping to bring about these changes.

> “ . . agricultural engineers, researchers and agronomists will be vital to bring about change ”

I'd like to start off the discussion on sustainable arable land management in Britain with some suggestions based on my experience of observing the incidence and severity of water erosion over nearly 50 years. I know that many proposals may appear impractical at the present time, but perhaps they will give something to aim for.

What I am aiming to do is to bring together what was done in the past with what can be done now or in the near future I would like to see:

1. Smaller fields, so more boundaries - grass, shrubs, trees, beetle banks - and more ditches that all link biodiversity refuges such as woodland or heath leading to greater biodiversity as well as reducing the chances of runoff taking place.

2. Smaller and more fuel efficient equipment - tractors, drills, harvesters - leading to less compaction, better yields, less runoff and erosion, and hence less flooding (muddy floods) of property and roads and pollution of water courses.

3. Better timeliness and more care when cultivating, drilling and harvesting the land so resulting in less compaction and less runoff and erosion.

4. Fewer and more precisely applied inputs, along the lines of Integrated Pest Management, so there is less chance of polluting water courses. Also there will be less energy and petroleum used to produce the inputs.

5. More people will be needed if smaller machinery is used in a timely manner. The one thing the world is not short of is people, although presently jobs are in short supply. More employment would be a good thing.

6. More integrated farming, combining both arable and pastoral land use, but not intensive livestock production that results in soil compaction. And better and longer rotations. There is little evidence for widespread erosion when the Norfolk 4 course rotation, or something similar, was widespread, whereas there is in earlier times (Romano-British and Medieval times) when the land was also under great pressure.

7. Application of more manure/compost both from farms and towns leading to better soil structure and more rapid infiltration of rainfall into soils and so less runoff.

8. Insert grass into the rotation where land is unsuited to cultivation, in the wetter parts of the country, or where it is vulnerable to runoff. This has been proposed by the Centre for Alternative Technology in their programme to reduce carbon emissions. The grass to be used primarily for anaerobic digestion.

9. More woodland on steep slopes and other parts of the landscape that need protecting from runoff, giving greater biodiversity and a source of timber and fuel. Increasing connectivity between woodlands and heaths will also aid movement of birds and animals across the landscape.

10. Better protection of water courses by keeping animals from channels and sediment from getting into them.

11. More on-farm reservoirs where these are needed to improve water self-sufficiency along with more efficient ways of irrigating crops that do not encourage runoff.

12. Are there ways of making farms more self-sufficient in fuels? The recent surge in number of on-farm wind turbines in localities I visit suggest there is a demand for such energy production. Is there scope for small scale production of diesel fuel from oilseed rape, methanol from sugar beet or cereals?

WHILST writing this I can hear a young woman from the Environment Agency saying at a meeting I went to about agricultural diffuse pollution that all the above is pie-in-the-sky and that it will never happen.

She may well be right, but how should agriculture proceed in the future - should it continue as it is?

Surely allowing land to suffer runoff and erosion nearly every year can't be keeping the land in Good Agricultural and Environmental condition?

Can a combination of technology and old and tried techniques be married to produce more sustainable use of arable land, reduce diffuse pollution and keep our land in Good Agricultural and Environmental Condition as well as provide jobs?

Bob Evans sits on the Global Sustainablity Institute at Anglia Ruskin University but this is a personal view.

FEEDBACK: If you wish to respond the issues raised in Bob Evans article please send your submission to:
The Editor, *Landwards*
chris.biddle@btinternet.com

www.iagretech.org

LTA UPDATE

SPRING 2013

An Apprenticeship success story

From trainee to dealership service manager

WHEN Mitch Hallett left school in 2004 at the age of 16, he says he was pretty sure that he wasn't going to get particularly good grades in his exams.

The academic side of school hadn't really interested him - but this didn't put him off applying for an apprenticeship scheme with New Holland.

Before his final term ended, Mitch applied to Ernest Doe & Sons in Rochford, Essex - his local New Holland dealership. He attended the interview and was offered the job. So, just two weeks after leaving school he began a new life as a New Holland apprentice.

Today Mitch Hallett has risen up the ranks to become the dealership's Service Manager and says he is very glad he took that initial first step:

"At first it seemed quite daunting: I was a bit overwhelmed by all the machinery and what it all did, but I soon settled into it. The Apprenticeship Scheme meant that three times a year I went off for four weeks to college at Reaseheath in Nantwich in Cheshire. It was good fun - I really enjoyed the college social life (and the college bar). I still keep in touch with some of the friends I made then.

"While we were at college we did basic training and different courses specialising in New Holland technology, such as hydraulics and electrics. Within about eighteen months I knew that I wanted to focus on combines."

Mitch says the course was the perfect grounding for his career at Ernest Doe:

"The scheme gave me all the basic knowledge I needed - but it also gave me great hands-on experience too. We even went down to Basildon for the specialist New Holland courses. We were shown around the factory - which was pretty impressive. After eight years I still enjoy what I do - although since becoming Service Manager there's more paperwork - but I still get out to work on the combines from time to time."

Mitch says the New Holland Apprenticeship Scheme was a great opportunity for him:

"I'd say to anyone 'Go for it!' - definitely. It is ideal for someone who may not be academic, but enjoys hands-on training. It's perfect for that. What you don't learn in books you can learn from getting your hands dirty."

Mitch Hallett

The three year course is run in conjunction with New Holland dealerships right across the UK. It is designed to equip the apprentices with the latest industry knowledge and technical skills and at the end of the course, successful graduates return to their dealerships with a BTEC National Diploma in Land-based Technology.

The specialist, semi-residential apprenticeship course is partly funded and run by New Holland, and involves an extra five modules specific to the company's range of tractors and harvesting machinery - modules that concentrate on areas such as hydraulics, diagnostics and electronics.

Additionally, all New Holland apprentices are registered at Land-based Technician Accreditation (LTA) level one on joining the college, which gives further accreditation to their learning, and can be progressed throughout their career. When each apprentice finishes at Reaseheath they will have achieved LTA level two which covers hydraulics, electrics, engines, powertrains and electronic service tool.

The next step is for the newly qualified technicians to gain product knowledge and diagnostic skills which will enable them to become a professional LTA level three technician. The final step comes at LTA level four, Master Technician which they achieve when they can demonstrate a high level of product knowledge and diagnostic skills, as well as having a good knowledge of New Holland aftersales systems.

> "... What you don't learn in books you learn from getting your hands dirty"

Mark Barnes, New Holland's After Sales Technical Training Manager, has the job of liaising with Reaseheath College, where the course has been successfully run since 2002.

He said, "The course creates a good, sound education and knowledge of the fundamentals, and the additional input of New Holland just raises the guys to a different level and sets them up nicely for their future careers.

"We are committed to attracting and nurturing the next generation of young men and women into careers in agriculture. Mitch is testament to what can be achieved by those looking for a long and rewarding career in one of the most innovative and important industries in this country."

More information on the New Holland Apprenticeship Scheme can be gained from local New Holland dealerships.

LATEST NEWS AND INFORMATION ON THE LAND BASED TECHNICIAN ACCREDITATION SCHEME (LTA)

Progress by the industry . . . for the industry

DAVID KIRSCHNER, who was appointed manager and coordinator for the LTA scheme by the joint-industry Land-based Engineering Training and Education Committee (LETEC) last year says,

"Manufacturers and LTA supporters are demonstrating their foresight by getting behind the LTA technician's career pathway.

"Companies such as Merlo UK have achieved LTA accredited training provider status and Krone UK have also entered into the process of having their training LTA accredited.

"The commitment and investment in training by companies such as these two is to be applauded. It is an essential part of developing the technicians of tomorrow."

On the college front, Barony, Brooksby Melton, Easton College, Wiltshire College and Reaseheath have all undertaken to register their full time land-based engineering students at LTA 1 as they recognise the potential of LTA to encourage a higher calibre of young people into an industry that offers a career pathway. Progress is being made by industry, for industry.

mrdkirschner@btinternet.com

WHY LTA?

- **Raise the profile of the industry and the career prospects within it.**
- **Aid retention of skilled staff by offering a career pathway recognising an individual's professionalism.**
- **Attract and develop technicians capable of meeting the challenges placed upon us by today's and tomorrow's technological advancements.**
- **Ensure that the high standards of service demanded by our customers are maintained and advanced.**
- **Enhance efficiency and profitable growth of businesses within the land-based engineering industry and those of our customers.**
- **Create an industry recognised benchmark of skills, knowledge and expertise.**

Record intake for Deere training

46 apprentices signed up for Babcock courses

JOHN Deere's Ag Tech, Parts Tech and Turf Tech apprenticeship programme has set another record for the new training season's intake.

Altogether 46 apprentices have signed up to begin their first year of training, which is provided by Babcock International Group, who deliver 10 per cent of all UK work-based apprenticeship programmes. The new intake includes 32 Ag Tech apprentice engineering technicians, 6 Parts Tech customer service apprentices and 8 Turf Tech technicians.

The John Deere apprenticeship was the first land-based agricultural and turf machinery programme to deliver training in the workplace, at the sponsoring dealership, 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 and the John Deere Training Centre at Langar, near Nottingham.

Overall the programme offers a City & Guilds or NVQ Level 3 land-based qualification and a John Deere LTA Level 2 qualification for the engineering technicians, and a Parts Administration qualification up to Level 3 (Advanced).

The new Deere apprentices

The apprentices can go on to complete three free courses in their third or fourth year to gain the John Deere Diploma and start their adult training at the John Deere University (JDU), using the knowledge and skills gained from the initial two- or three-year apprenticeship.

"Apprentice technicians very quickly find themselves working with highly sophisticated equipment, from computerised controls and satellite navigation systems to advanced, fuel-efficient engines and Formula 1 transmission technology," says John Deere Limited's training manager Chris Wiltshire.

"They are trained in engineering, electronics, hydraulics, diagnostics, communication skills, computing, sales and marketing. The need for skilled people working in our industry has never been greater, and we believe that these training programmes provide the best possible qualified technicians for our dealer network."

•THE Milking Equipment Association (MEA) held its inaugural Conference at Reaseheath College on 21st February.

Speakers included Brian Pocknee from the Dairy Group on current industry issues; Mike Madders Chairman of Dairy Farm Assurance with an update on the scheme and where Parloursafe will fit in; Lance Jackson on compliance and the main health and safety issues; Dr Ed Komorowskii from Dairy UK on the challenges facing milk processors over the next few years and what Parloursafe needs to do to convince them to support it; and Roger Lane-Nott, CEO of the MEA and Mike Cullen of Reaseheath College on the Parloursafe scheme.

Presentations were also made to the first LTA MEA graduates with their certificates.

Parloursafe is the short term being currently used to identify the Landbased Technician Accreditation (LTA MEA) scheme. The LTA MEA scheme is administered by the Institution of Agricultural Engineers and the training for the four Categories of qualification LTA1 to LTA4 is conducted by Reaseheath College.

How green is your timber?

March 2013 sees new EU Timber Regulations introduced which will affect those working in agriculture, forestry, environment and amenity engineering who use or produce wood.

SALLY ANDERSON-WAI reports.

WHETHER you are laying a temporary road, building a shed, buying paper or just erecting a fence, if you are using wood, you may be flouting the law.

Climate change and green issues are hot topics within the media and the European Commission is doing all it can to encourage countries to reach their targets to reduce carbon emissions. With this in mind the new EU Timber Regulations (EUTR) are being introduced this month (March 2013). If you are handling timber or producing wood these new rules will affect you.

All companies using timber or placing timber products on the EU market must follow a 'Due Diligence System' (DDS) to minimise the risk of importing illegal timber into Europe, under the new regulations.

From March 2013, all timber traders will have to provide basic information indicating from whom they buy their wood and whom they sell wood products to. Anyone flouting the new regulations could be risking severe penalties. The consequences of failing to meet the new regulations means you could risk the seizure of your timber and timber products, be immediately suspended from trading and fined proportionately to the damage resulting from any infringement.

You will have to provide proof of due diligence for all timber products, pulp and paper, wooden furniture and prefabricated buildings imported into the EU, however recycled timber products are not covered by the regulations.

Ground protection solutions company, Timbermat Ltd, for example, have been ensuring its imported wood meets the new EU Timber Regulations well ahead of the new rules.

Since 1992, they have grown into one of Great Britain's largest suppliers of temporary access solutions including temporary roadways and walkways. Its wooden ground protection mats are tested and certified to meet the new EU regulations. The company is FSC Certified and their importer is FSC (Forest Stewardship Council), PEFC (Programme for Endorsement of Forest Certification) and SFI (Sustainable Forest Initiative) registered.

"Responsibly sourcing our wood is top priority for us and our customers are particularly discerning, many wanting assurances that the timber products they buy or hire meet the highest standards of environmental responsibility. In today's market, which is increasingly driven by sustainability, we are pleased to be able to offer a wide range of sustainable timber products," said John Roberts, Timbermat's Managing Director.

. . . Up until now, the WWF estimates the UK has had the biggest market in terms of the value of illegally logged timber in Europe

"Our extensive research means we only work with reputable companies who are environmentally-conscious - from the planting of a tree to dividing it up for timber."

THE new EU Timber Regulations are aimed at prohibiting the placing of illegally sourced wood products to help combat the felling of trees without the proper authorisation or permissions.

Illegal logging not only deprives governments of tax revenue, but encourages corruption and bad practice. It also has a negative impact on social infrastructures and human well-being. Few may realise it causes the loss of long-term security and income for forest-based communities, the loss of long-term supplies of timber threatening both quantity and quality, as well as causing the degradation and clearing of forests and consequent loss of habitats for plants and animals.

According to the World Wildlife Fund 2012 Report '*Barking Up The Right Tree?*'(**1**) until recently many local authorities often haven't kept records of the timber products they buy, and over half of UK local authorities didn't have a timber procurement policy in place.

Up until now, the WWF estimates the UK has had the biggest market in terms of the value of illegally logged timber in Europe and is the third largest producer of illegally harvested or traded timber and wood products (3.2 million cubic metres RWE), after China (8.2 million cubic metres RWE) and Japan (5.3 million cubic metres RWE). It is also estimates that the UK has been spending about £712 million on 'stolen' timber and wood products per year - the equivalent of £11.76 per person in the UK.

In recent years there has been an increase in fraudulent certificates for timber so the 'due diligence' auditing being introduced should help to combat this.

The Timber Trade Federation (TTF)(**2**) is supporting members to help them meet the new regulations. It introduced a new section covering the new environmental

criteria in its code of conduct and has made available a free due diligence system and associated tools - the RPP (Responsible Purchasing Policy) that members can use in their businesses to help them to meet the new EU Regulation requirements. It is also considering becoming a Monitoring Organisation to help timber traders their due diligence systems.

"The lessons learnt over the past seven years, mean that in its current form, completion of the RPP, if used correctly will ensure TTF Members are compliant with the EUTR," said a spokesman for the TTF.

"It is particularly important to remember that even if timber products were purchased before the 3rd March 2013 deadline, they will be caught by the legislation if they are 'placed on the market' after that date."

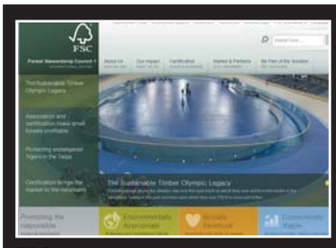
The TTF is recommending traders to use an independent auditor to help them meet their obligations under the EUTR.

For more details, check out the TTF and Timbermat websites.

(**1**)
www.wwf.org.uk/what_we_do/campaigning/what_wood_you_choose/local_authorities/
and
http://assets.wwf.org.uk/downloads/wwf_timber_report.pdf

(**2**)
www.ttf.co.uk/Environment/EU_Legislation_.aspx

Further resources



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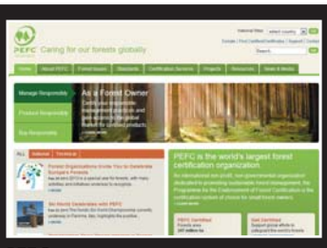

PEFC
www.pefc.org

SFI
www.sfiprogram.org

TTF
www.ttf.co.uk

For three years, issues of *Landwards* have been lit up by the individual and single-minded views of Geoffrey Wakeham. Shortly after completing his contribution to the Winter 2012 issue, Geoffrey passed away peacefully, surrounded by his family.

Wakeham's World had become a popular and widely-read feature. Editor Chris Biddle has compiled this tribute with the help of family, friends and former colleagues.

Wakeham's moments

THERE was always one 'banker' in compiling *Landwards*, *Wakeham's World* would be the first copy to arrive, ***writes Chris Biddle***.

The subject matter topical, immaculately compiled, never short of a headline-grabbing opinion and always relevant.

It was a measure of the man that Geoffrey was still bursting with thoughts and suggestions on the future of agriculture in general, and the role of agricultural engineering in particular, whilst compiling his final contribution (*Landwards* Winter 2012), written from his hospice bed with his family giving him full support.

Geoffrey was a man of Kent, born in Deal. At school, Kings, Rochester, he did well in Maths, Physics and Art.

After school Geoffrey took up a four year comprehensive apprenticeship with Ransomes, Sims and Jefferies of Ipswich, then a major manufacturer of farm and grass machinery,

He spent the first three months in the Training Centre at Ransomes, followed by learning to use a range of basic machine tools and undertaking fitting skills.

Running parallel to these hands-on practical experiences was a programme of academic studies lasting some seven years. This included four years day release and evening classes to obtain an HNC in Mechanical Engineering, a year at Writtle Agricultural College studying for a Diploma in Agricultural Engineering and two years studying Industrial Administration.

This gave Geoffrey the academic qualifications to obtain Chartered Engineer status. A former Harper Adams colleague, Bob Bradley recalls his first meeting with Geoffrey. "We met at Writtle Agric College in 1961 when undertaking a one- year Diploma Course in Ag Eng. It was there that I came to experience the first of a series of incidents involving Geoff that we came to call 'Wakeham Moments'.

"A lecturer, Mr King, was giving us a practical on explosives. He arrived with an ammunition box containing 12 sticks of gelignite, a reel of slow burning fuse, 12 detonators and 12 pencils.

"He explained how we should each take a stick of gelignite and push a pencil into it in order to make a hole large enough for the detonator, then cut precisely 3 feet of slow burning fuse, and attach to the detonator. He then told us that the fuses we had cut to 3 feet would take 30 seconds to burn down to the detonator. 'Are you ready? at the count of three light your fuse', he said?

"Which 11 students did, the chap next to Geoffrey panicked, dropped his match and ran off.

"..run for your life, Mr Wakeham!"

"It was then that the 'Wakeham Moment' kicked in. To Geoffrey, 30 seconds was plenty of time to get another match from his box and light the remaining unlit fuse.

"With all eleven fuses burning like roman candles and the teacher looking at his stopwatch rather than on what had happened to the lighting process, hadn't noticed Geoffrey still crouching over an unlit fuse.

"'I'd run for your life Mr.Wakeham' he shouted, which fortunately Geoffrey heeded without further prompting!"

On another occasion, the students had to design, install and calibrate a device for measuring the flow of water in a stream. At the time of testing his device, the flow of water from a reservoir, that ran into a ditch where Geoffrey had installed his measuring device, was a mere trickle.

Gazing at this small flow of water prompted a second 'Wakeham Moment'.

Geoffrey together with some helpers, blanked off the reservoir overflow. The next day the water level was considerably higher. When they unblocked the reservoir overflow the result was quite spectacular, creating an 'Essex' Severn bore. Unseen by the students, two gardeners were standing in the ditch trimming the grass banks, but according to Bob Bradley, "they were saved by a low bridge somewhat downstream".

From Ransomes, Geoffrey was headhunted and joined parts specialist Sparex, based at Exeter.

Sometime later, Sparex folded leaving Geoffrey and his family stranded in Devon with no job and very little money.

His former colleague Bob Bradley had kept in touch, and mentioned that the Engineering Department at Harper was expanding and new jobs might be in the offing. Two years later in 1981 Geoffrey was appointed as a lecturer.

Geoffrey dealt principally with the Agricultural Engineering students and when Harper Adams introduced degree courses in engineering, Geoffrey decided that he should not be out-qualified by his students.

Between 1986 and 1988 he studied for a Masters in Design for Manufacture.

In 1994, an interest in expanding the engineering provision into Food Production meant a period of visiting Food Technology Research Facilities and consulting with industrial experts.

Geoffrey was a very practical engineer. In fact he once wrote, "Practical experience is invaluable because it covers a wide range of engineering disciplines".

Geoffrey retired from Harper Adams in 2004, having spent 23 years at the University College, becoming senior lecturer. Before and during his retirement, Geoffrey and wife Ann always took great pleasure in their children and grandchildren.

Geoffrey loved the garden, played Bridge and helped at Edgmond School with after-school activities, getting the children involved in simple engineering experiments.

He invigilated at Wrockwardine Wood Arts College, occasionally commenting on what appeared to be very simple exam questions, wondering if these really stretched the candidate's ability.

But Geoffrey always put his students first, and at the same time made sure that academic standards did not drop.

A keen photographer he was Vice Chairman of the Newport Photographic Club, and was also a member of the Writers Group in Telford.

Geoffrey was a member of both the Institutions of Mechanical Engineering (IMechE) and Agricultural Engineers (IAgrE) and a Trustee of the Bomford Trust.

Geoffrey's last *Wakeham's World*, was entitled *Future Thoughts* and focussed on how British farming might change in the years ahead

It was perhaps fitting that this final contribution should be looking forward rather than reflecting on the past. The questions he posed would be for others to ponder and act upon.

And his final line, '*Geoffrey Wakeham signing off*', was a flourish that said, in effect, "Over to you chaps!"

Courteous, influential and incisive . .

Another former colleague, Richard Osborne, recalls times at Ransomes with Geoffrey

GEOFFREY Wakeham was my first ever boss, when, in 1967 and green from university, I started my professional career at Ransomes, Sims and Jeffreys Ltd at Ipswich. In one way or another, he has been a significant influence upon my own career ever since.

I had joined the recently formed Test & Development (T&D as it was known), a department within Ransomes Engineering Division, which also included a Drawing Office off our sections (Tillage, Harvesting, Grass Machinery and Fork Lift Trucks), a metallurgy laboratory, and Quality Control.

We were a handful of young graduates from various backgrounds and technical disciplines, chosen to embrace the Ransomes product ranges. We tested the company's new prototypes prior to production (and sometimes after . . .) and devised new ideas for possible future product development. Our factory run-about was an electric powered Austin Minivan (way before its time!) and among other research machines was a trailing seat lawnmower capable of cutting at 40mph, and a combine harvester with remote controlled steering!

The objective of Geoffrey's department was always to gain as much understanding as possible of the performance parameters of the various products, to provide a sound basis for corrections and improvements. My own work, for example, included measuring the small differences that plough share angle made to overall draft requirement, and the power absorption of combine harvester elements. Naturally most of this was carried out in the field on complete machines under live working conditions.

Ransomes T&D had made their own strain gauge recording equipment, including a three point linkage dynamometer for tillage testing. As this incorporated thin sheet sections for the gauges midway in the link arms, woe betide anyone who took a mounted plough down the Nacton Road supported by this fragile and potentially dangerous tackle without substituting the standard set for transport! Resolving recorded measurements into vectors correctly was a mathematical challenge in itself (no Excel spreadsheets, not even computers then!), and if the answer appeared in the wrong sense (force pushing the tractor), Geoffrey, whoms razor-sharp mind had no time for sloppy thinking, would unhesitatingly advise to fix the linkage behind a car and see if it saved petrol!

Field results were transmitted by multi-core cable into a multi-channel Wheatstone bridge analyser mounted across the back of an Austin Gipsy 4WD van. This vehicle, renowned for excessively soft suspension with a tendency to roll easily and occasionally turn onto its side, had to be skillfully driven by a colleague to keep pace with the equipment under test. Failure to do so would result in having to re-solder up to about 50 broken thin wires out in the cold, or, when harvesting, even in the dark as well - frequently with one of the hallowed Chief Designers present, impatiently reminding us that the crop would not wait and neither would he! Test results and recommendations were expected on the designer's desk early the following morning. Such was my 'apprenticeship' under GFDW at Ransomes.

Despite his sometimes justifiably acerbic reactions to disasters of his exuberant young staff, not to mention incisive comments about lesser offerings from the drawing office, Geoffrey was always courteous and kind, opening his home to parties for colleagues and friends, several of whom have remained in touch with him all his life.

The experience gained from Geoffrey's leadership at Ransomes inspired my confidence to develop similar testing techniques when I moved to Bomford Turner. For example, purpose-made measuring devices led to improving the transmission of the DynaDrive, and pressure transducers were used to check for acceptable dynamic loadings in hedgecutter arms. The associated recording equipment was by then commercially available and shrunk small enough to place inside the tractor, obviating the need for a tethered support vehicle.

Geoffrey and I caught up each other again when he joined the staff at Harper Adams, and from time to time we jointly arranged student projects relating to practical manufacturing industry at Bomford Turner.

For me *Wakeham's World* has been an immediate 'must read'. Geoffrey's stirring comments after the 2007 floods about involving agricultural engineering expertise alongside more expensive 'civil' work encouraged me, as a resident, to attend meetings of the multi-agency team developing a £3M alleviation scheme for my own flooded town. A positive response to my suggestion to county highways that they should help farmers with soil loosening of pasture (especially roadside gateways) to increase storm water retention at source and thus reduce the accelerated flows along roads into built up areas is still awaited . . .

Geoffrey will be sorely missed.

Mechanised Conservation Agriculture in Africa

Sir,

I have noted with interest the recent articles in your journal by Brian Sims and Frederic Baudron '*Farm power and conservation Agriculture - the potential for two wheel tractors in Sub Saharan Africa*' (*Landwards* Autumn 2012) and the subsequent comment by David Williams '*Two wheels too few*' (*Landwards* Winter 2012)

I am a semi-retired tertiary educated Australian farm manager / agronomist who worked for a professional lifetime in grain production on the NW Plains of NSW, Australia. For most of that time I was involved in conservation agriculture (CA) and zero tillage farming.

Since 2004, I have assisted as a consultant partner in various aid projects with the main aim of development of CA and small farm mechanisation in South Asia. This has principally been with two wheel tractors (2WT) as the main traction machine.As an outcome, the ARC Gongli seed drill (as quoted by Sims & Baudron) has been developed. It was achieved as a co-operative venture between several Australian and International partners.

2WT are the main traction units in much of the developing world. Around 500,000 are manufactured world-wide annually. There are over 400,000 of them in Bangladesh and an estimated 2 million in Thailand. There are lesser numbers in other nations. It appears that 2WT have been largely ignored by the Ag Engineering fraternity, as they are too small with low horsepower engines, and one must mostly walk behind them to operate them. They are not attractive research propositions.

The history of development of 2WT in Bangladesh is interesting. There were a series of massive floods in that nation in the late 1980s and the animal traction population disappeared overnight. A decision was made soon after to import 2WT - no restrictions. From a base of 3000 units in the early 1990s, numbers are now at 400,000. Average farm size in Bangladesh is 0.6 Ha. and the field size is mostly too small for any 4WT.

At present 70-80% of arable land in Bangladesh is farmed with a 2WT. Initially they have been used in paddy rice production (land preparation and puddling), and have now extended into upland cropping. The CA system is being introduced into upland cropping, as well as direct seeding of rice with a 2WT seed drill.

There has also developed a 'subculture' of 2WT in Bangladesh. There are many owners, as well as professional drivers, sowing and cultivating contractors, hire firms, specialised repair shops with semi-skilled mechanics, spare parts retailers, new 2WT dealers, and 2WT parts recyclers. Every decent size town in Bangladesh has a 2WT spare parts shop.

ARC Gongli 2WT, side view

. . . I cannot emphasise enough that an affordable traction unit and implements to suit CA for the small area farmer of the developing world is the main objective

Regarding the comments of David Williams I would emphasise that the 2WT CA project does not intend to use or advocate any soil inversion implements (ploughs etc.) as part of the programme. The only soil engaging implement being recommended is a seed drill. The ARC Gongli is structurally sound and was designed in Australia and has been independently tested by University of Southern Queensland Ag Engineering Department. It is being manufactured in China to these specifications.

Regarding manoeuvrability the operation of 2WT depends a lot on balance. Weight must be distributed properly either side of the main axle. If this is done properly then operation can be managed (although experience assists greatly). The ARC Gongli also has a set of press wheels on the rear, which support the back of the seed drill and this assists in operation. The standard 2WT with a rotavator attached has a seat for the operator. However at this stage of the research a seat for a 2WT CA seed drill has not been developed. I am confident that eventually a seating system compatible with CA implements will be developed.

Most Asian built 2WT in standard configuration have safety issues. Indian research workers have done a lot to address these issues. After market add-ons such as vibration isolators, exhaust modifications, and belt guards have been developed. Unfortunately these are mostly not

currently available on a 2WT. Asian manufacturers should be encouraged to fit these items as standard equipment.

Concerning reliability and longevity, this is a case of 'you get what you pay for'. At a basic cost of $US1000 F.O.B for an Asian built 2WT it is not a long lasting machine. Bangladeshis work on a service life of 6-8 years, with the machine operating a total of 20+ Hectares annually. Possibly some of the reliability issues in Asia are due to lack of proper preventive maintenance. Do no maintenance - just drive it until something breaks, and then fix the immediate problem.

Regarding Sub-Saharan Africa, one is faced with a dilemma. The animal traction population is going down, due to drier years and animal disease. As a result, many farmers have down sized from animal traction to the hand hoe. Sub Saharan Africa has similar challenges to South Asia - mostly small farm size, very limited finance, and a poorly educated farming community.

If we are to research and recommend mechanised CA agriculture in Africa, where do we start? Do we go down the 2WT course (as per Bangladesh) or take a quantum leap to 4WT technology which may be only available to a few who can afford it and they contract farm for others? I have been told of projects on contract farming initiated by East Africa Govts some years ago where large 4WT were operated by a few with Govt. support. However these schemes failed due to poor tractor maintenance and frequent breakdowns.

I have been in various discussion groups and 'think tanks' on this dilemma, and we have generally come down on the side of the 2WT (with CA) as the least cost, moderate risk alternative - drawing on the Bangladesh experience.Various entrepreneurial type farmers should be encouraged to invest in a 2WT with a set of CA gear.

I cannot emphasise enough that an affordable traction unit and implements to suit CA for the small area farmer of the developing world is the main objective. Small boom spray units for 2WT are being developed. Fortunately, the tool bar on the ARC Gongli lends itself to many other farm implements being designed and fitted.

However I always bear in mind the comments made to me by my Bangladeshi colleagues - that the equipment must be affordable! They have stated to me a figure of $US500-600 for a CA implement.

Anything more expensive than that - no matter how good - is just outside the reach of the small area farmer.

R.J. Esdaile AM B.Sc. Agr.
Agricultural Consultant
Tamworth,
New South Wales
Australia

African soil management

Dear Editor and Brian Sims,

I was very interested to read your pertinent article, very relevant to voluntary work I've been doing (since retirement from soil & water engineering in the UK) in Kenya (2010, 2011, 2012) and also in Ghana (2012).

Since my first recent retirement visit to Africa in 2010 I have resumed my interest in practical soil management and have spent some time investigating some of the problems found within West Kenya relating to soils management of agricultural land.

A widespread problem I encountered in England soon after starting work was the lack of adequate crop growth, despite normal good husbandry practices, on many farms in the area in which I was working. A national report produced in 1970s entitled '*Farming and the Soil*' by Sir Nigel Strutt, highlighted, amongst other problems prevalent at that time, and to a somewhat lesser extent today, the acidification of soils due to the lack of use of appropriate calcifying materials such as Calcium Carbonate and Magnesium Carbonate.

This acidic soil problem is widespread not only in England and many other countries but this is also very evident in other areas of Africa as well as Europe. Normal chemical soils analysis is time consuming and expensive and my research has led me to find a simple tool, a pH meter, for determining soil acidity. This cheap tool is definitely not recommended for highly accurate measurements in an advanced agricultural setting as in UK or many other 'Western' countries, where sophisticated and accurate soil tests, often via a laboratory, are readily available, but could be a boon in developing countries.

It is however one that is readily sold by garden centres in UK for use in the home garden situation and costs are minimal per unit being approx £5-6 each.

I believe these are also useful for practical application by advisers and smallholder farmer groups where no laboratory lies within ready distance and where money is extremely limited. This tool is the pH meter, also available as a dual pH/soil moisture tester, which I have introduced to Ministry of Agriculture advisers and others in West Kenya in 2011 and Upper North East Ghana in 2012. These are regions with substantial problems of soil acidity and with many impoverished smallholder farmers ekeing a living from a few small fields, often 1Ha max.

The tools are NOT scientifically accurate but do give an indication as to whether or not pH and/or soil moisture is in need of attention.

> "... I would be pleased to hear from any member who has an interest in this very specific but fundamental topic of soil pH"

I have produced A5 size laminated instruction sheets with a list of crop pH requirements for use with each soil meter and, with sponsorship from friends, family and local business have been able to supply so far almost 200 meters for use by advisers. Many more have been requested and as funds become available I will obtain more and take/send them. A video/DVD also shows the why and wherefore of the pH meter.

I would be pleased to hear from any member who has an interest in this very specific but fundamental topic of soil pH or who might like to sponsor one or more of the meters. I have 'sold' them to supporters at £7.50 each, £14.00 for 2 or a very special deal £25.00 for 4. My supporters have then given them back to me to take or send to where needed. Obviously sending by post is costly but most have arrived OK and where not I received reimbursement from the PO to get some more. I prefer to take a case full on my visits or send them with friends. (KLM baggage allowance is a generous 46Kg to Nairobi!).

Other topics such as organic matter removal, ploughing, cultivation pans, fallowing or rotation cropping are also very important but I'm sticking to soil pH for now.

Bear in mind this is not high power, modern agric engineering. Far from it. In Kenya with 600,000 smallholder farmers it is back to basics with a vengeance. E.g. Learning to plough with oxen rather than by hand is still rare in some situations.

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Issue 68 Number 1 Spring 2013
MEMBERSHIP MATTERS

BRANCH REPORTS

NORTHERN IRELAND BRANCH

The Roundhouse - a livestock building with a difference

MOST people considering the erection of a new building for cattle in Northern Ireland will probably think in terms of a rectangular steel portal frame built over slatted tanks and with spaced cladding for ventilation.

However, members and visitors of the Northern Ireland branch of IAgrE were privileged recently to also see a completely different type of structure during a visit to the farm of Mr Steven Buick near Kells, Co Antrim.

The Roundhouse at this site is a 30m diameter circular structure with a PVC-coated polyester fabric umbrella-like roof over cattle pens and it is the only one of its type, so far, in Northern Ireland. Now in its 4th season, the building kit was delivered on an artic trailer and put up on a pre-prepared concrete base by the manufacturer's team in around a week. Mr Buick chose it after viewing a similar installation in Southern Ireland.


The Roundhouse's support steelwork and top ventilation opening

Site erection

The erection process involved the centre post being put up before the roof support frames were laid out and connected like spokes of a wheel at ground level.

When the roof support frame was bolted together the flexible sheeting was fitted and tensioned before the whole roof was progressively raised by a special jacking system around the centre post. When high enough, the outer supports were swung vertically into place before being bolted to their bases.

Additional hollow supports, which also function as rain water collection downpipes, were then added.

All the steelwork is galvanised and the building package also included the pen divisions, drinkers, external feed troughs and an integral cattle handling system. There is a 10 square metre central high level vent allowing moist air to escape by natural convection.

The building layout

The pen divisions are radial spokes and join to the centre near a race and crowd pen.

This can hold a full pen of cattle which allows all the animal groups to be kept within the building, in rotation, when their own pen is being scraped out. The crowd pen has a 360 degree forcing gate by which one person can safely direct stock to the race and crush. Batches of animals can be taken in or out of pens via the centre and can also be diverted to or from a loading bay.

There are personnel access points to each pen for inspection access without the need to open pen gates. As all the forage is dispensed by diet mixer to troughs around the outside perimeter there is no internal space taken up by a feed passage.


IAgrE group in discussion outside the Roundhouse

Experience with the building

Mr Buick described how the animals had settled easily to be content in the building.

He supported the manufacturer's claim that the animals quickly get used to the proximity of others in the building. The layout complements their natural herd instincts and the handling system is very efficient.

He was also pleased with the good growth performance and health of his stock. He attributed freedom from respiratory diseases (such as pneumonia) to the continuous but draught free movement of fresh air in from all sides and the natural upward movement of warmer moist air through the roof opening.

The inner roof surface was clean and showed no signs of the type of condensation staining common on metal sheeting surfaces in conventional cattle buildings. Woodchip is used for bedding and the used material is routinely taken out and piled up to be field spread during the following year. By this time the chips are naturally composted to form friable organic material. As there is no liquid slurry storage tank, compared to other types of cattle building, toxic gas accumulation is not an issue.

Another interesting fact about round buildings

Although the features described above are the main reasons to consider a round livestock building the use of such a shape is not new to provide weather resistance and minimise the use of building materials.

As owners of circular grain storage bins or slurry stores will know, such a structure provides the maximum internal area (and volume) for the least amount of perimeter panelling. Using the same length in a square formation loses just over 20% and long narrow structures even more.

Steven Buick explaining the Roundhouse during the visit

Discussion

The IAgrE group were also shown an adjacent slatted portal frame building with a central feed passage and calf creep area.

IAgrE group with host Steven Buick at the Roundhouse

Mr Buick then facilitated a technical discussion centred on cattle breeding, rearing, housing and finishing. The range and depth of questions from the group showed their keen interest in what they had just seen. Topics included:

- Reasons for choosing the Roundhouse
- The type and service life of the roof material
- Animal behaviour
- Cattle health
- Feeding and handling systems
- Breeding and breed preferences
- Carcass characteristics for both traditional and Continental breeds
- The out wintering of low maintenance hardy breeds.

A wide range of members and guests attended and IAgrE's Northern Ireland Branch chairman, George Wallace, thanked Mr Buick for being generous with his time to host such an informative and enjoyable visit.

More information about the Roundhouse

The Roundhouse is designed and supplied via Roundhouse Building Solutions Ltd, Barnard Castle, Co Durham.

More technical information about this product, including video presentations showing how it is erected on site, can be viewed at *www.roundhouseltd.co.uk*

Terance Chambers

SOUTH EAST MIDLANDS BRANCH

Bulk Grain Drying - the inside story

DAVID Bartlett (ex-ADAS National Expert on Crop Storage Engineering and now t/a BioMeasurements Ltd) presented a very interesting and stimulating report of his recent work on bulk grain drying. This has uncovered the reasons for poor drying performance in some grain stores.

After reviewing the principles of bulk drying and current wisdom established over the last 50 years, David outlined the potentially revolutionary findings of his 3-year project involving a group of local farmers.

The problem has been exacerbated as under-capacity installations are being further overwhelmed by the sheer volume of grain coming into stores compared to when they were installed, i.e due to increases in yields and combining capacity, depth of storage on floor, etc.

Initially, he developed a monitoring system to measure the actual rate of water loss / gain from a drying bulk. Results from a conventionally controlled equilibrium drying process showed that moisture is lost during the night when the grain surface temperature is falling. Also, the use of humidity control restricted the drying process and it is only because of their high design ventilation rates that these stores have been successful.

Drying results from a store ventilated with unheated air clearly demonstrated how the heat of the day is stored in the grain bulk and passes out of the top of the bulk during the night, taking moisture with it. Trials showed that where extra heat was added during the day and only cold air blown at night, improved drying rates could be achieved.

This process can be used to adjust final moisture contents before marketing by heating the bulk using air at up to 50C for 12-18 hours then cooling during the next cold night. The use of heated air (at 50C) for quick batch drying was also examined. This process can achieve evaporative capacities of up to 10 times those that low temperature drying can achieve. Large amounts of heat are needed but the process is thermally efficient and compares well with modern continuous drier operating efficiencies.

Heated air batch drying results in a steep moisture gradient in the grain. Skillful outloading can ensure good mixing to provide uniform moisture contents. Alternatively, stirrers can be used to reduce the moisture differences to acceptable levels. Stirrers also lift the constraints on drying depth and heat input that restrict the performance of equilibrium drying processes.

David was typically cautious and emphasised that these findings are yet to be further verified using this harvest's data to optimise this new procedure. He also hopes that the practical field work can be extended using computer modelling to simulate a wide range of conditions. However, funding is needed for this work.

This stimulated much debate and interest, not least from the farmers who attended the meeting. All were aghast that no research had been carried out on this important aspect for some 30 years. One of the participants in the research praised David highly for his persistence and exposing the "pathetic level of knowledge" of the drying process - knowledge that is enshrined in guidance that all farmers rely upon.

It was revealed that whilst the initial work was funded by modest contributions from a group of farmers and David has worked closely with FLR Crop Drying Ltd to develop the control system and they continue to support the project, he funded the work in the third year himself. It was suggested that farmers should lobby for funding to develop this important work, which is likely to bring significant benefits in terms of maximising existing systems and reducing overall energy costs.

David also had plenty of simple practical tips for farmers on grain sampling, ventilating stores and the benefits of insulating air tunnels, etc, as well as managing drying regimes. As our Chair observed in summing-up at the end of the meeting, "It just shows what one person and a group of farmers can do". It took us all full-circle back to the exciting pioneering days of ag engineering R&D and proves there is always something new to learn. Here we are into the realms of the 'unknown unknowns'.

When David has analysed this years' results he intends to produce a full report in a technical paper for *Landwards*, so treat this as a preview of things to come. Based on current evidence this will destroy a few myths'. Watch this space. You will be amazed!

Alan Plom

WEST MIDLANDS BRANCH

Carbon Capture

ON 6th November 2012, the West Midlands Branch was privileged to receive a presentation on Carbon Capture and Storage from Mr Julian Barnett of National Grid.

The presentation was split into 4 stages:

- What is Carbon Capture and Storage
- What is Carbon Dioxide
- The North Yorkshire and Humber project
- National Grid's R&D programme.

The UK's long term goal is to reduce Carbon Dioxide (CO2) emissions by at least 60% by 2050 compared to 1990 levels with real progress being made by 2020. Carbon Capture and Storage (CCS) is seen as a technology which has the potential to reduce CO2 emissions from large industrial emitters, such as Power Stations by up to 90% through the removal, capture and transportation from fossil fuels either before or after they are burnt. The captured CO2 must then be contained in some form of storage site such as a depleted oil or gas field in deep saline aquifers.

He advised that a demonstration programme of commercial scale projects had been launched by the Government to test the commercialisation of the technology. National Grid have interests in a number of these projects and one important element of particular interest to National Grid is the pipeline infrastructure required to transport the CO2 from the capture plant (eg a Power Station) to the storage site.

After explaining the concepts of Carbon Capture and Storage, Julian then went on to discuss the properties of CO2 and its commercial uses, in particular the methods in which it can be transported via pipeline (either as a liquid or a gas).

He then showed an excellent animated film of National Grid's North Yorkshire and Humber project which covered the principle methods of capturing the CO2 from Power Stations in North Yorkshire, to the infrastructure used in the pipeline (such as compressor stations and pipeline inspection points) to the storage location itself out at sea. The film covered extensive detail of the pipeline, including the engineering challenges of road, rail and river crossings. Of particular note was the measures taken by National Grid to minimise environmental impact and ensure that any areas disturbed by the pipeline are returned back to their original state following the construction phase.

Following the film, the presentation described some of the research work being undertaken by National Grid. This comprised of two projects, the first called the 'COOLTRANS' project which is a 3 year research programme which aims to address knowledge gaps relating to the safe design

and operation of onshore buried pipelines for transporting high pressure CO2. The research project is a three year programme which is due to complete in December 2013 and Julian showed some footage of the site and a test that has been conducted.

He then moved on to describe some work that is being run in collaboration between National Grid and the University of Nottingham which aims to understand the impact of injecting CO2 into the soil and the effect it has on a range of crops such as grass/clover, wheat and beetroot.

Overall this was an excellent evening and a first class presentation which was enjoyed by all, especially in view of the number of questions raised at the end. The vote of thanks was given by myself.

Antony Johnson

FORESTRY ENGINEERING GROUP

Visit to Clarks of Parkgate

FOLLOWING on the FEG's 'Innovation' theme, a Committee meeting / member's visit was held at the premises of Clarks of Parkgate Ltd. near Dumfries. The Managing Director Douglas Clark hosted the event.

In 1924, Douglas' grandfather William Clark set his name above the door of the blacksmith's forge in the village of Parkgate and continued the traditional service to the local farmers and foresters by shoeing horses and repairing tree-planting spades.

In the 50s William's son Murray gradually took over the reigns and began to specialise in the manufacture of forestry ploughs designed to the requirements of the Forestry Commission. This opened a world-wide market and over 2000 ploughs were eventually sold. Clarks also took on the fabrication of the Commission's 'Chapelhall' Skyline bases and towers and other components associated with timber harvesting.

Since then Douglas who is the third generation of the Clark family to run the business, has diversified the company into what can only be described as one of the most successful and innovative family business in Scotland.

Douglas summed up his approach as, "Find a niche market, design a unique solution, then produce a top quality product. To do this, staff are a vital part in the business and I have always recruited people who are well motivated, have a good work ethic, and have enthusiasm. These, in my opinion, are more important than high level qualifications."

Douglas has backed up his workforce by always investing heavily in the latest technology both on shop-floor and in the company design-office. It is in this way Clarks have the necessary in-house versatility to produce the high quality work for which they are known.

Clarks regularly undertake the manufacture / repair / modification of hydraulic rams, forestry equipment, rail-track maintenance equipment, material handling and recycling equipment, as well as adapting various vehicles and items of plant for use as land-mine clearance.

With all these entrepreneurial activities in the company, it is no surprise that Douglas's wife Yvonne is the director of the associated company trading as Clark Forest who are specialists in arborist, chainsaw, garden and non-mechanised forestry equipment, and sell worldwide from their online shop. Clark Forest's product range includes chainsaw accessories, chainsaw safety clothing, arborist supplies and rigging equipment.

Everyone who attended the event was most impressed with the innovative management and employee enthusiasm that were clearly the key elements in this family company's success.

www.clark-engineering.com

James Christie

WESTERN BRANCH

Kemble Farms Ltd Visit

UP to 4 inches of Cotswold snow didn't deter 18 branch members and guests from a visit to Kemble Farms Ltd's dairy unit and anaerobic digester plant.

Kemble Farms began in 1925 by Mr S J Philips and continues as a Philips family business. Today the farm, which totals 900 hectares, has a 750 head dairy herd (plus followers) and 525 hectare arable crop with a further 500 hectares arable contract farmed.

The visit was hosted by Mr Tim Wring, Herd Manager and he began by showing us the area where the herd is housed. All cattle are housed, including the dry cows, 365 days a year. The exception is young stock which is grazed in the first year.

Tim stated that expansion plans are underway with an ultimate goal of milking 1100 cows, each producing 11,000 litres of milk per year. The cows are milked three times per day and when the herd increases to 1000, this will mean a 24 hours-per-day milking operation. The herd building benefits from an automatic scraper which conveyed the cow slurry to the digester plant.

Tim then took the group to the digester plant which generates electricity and heat energy from slurry and energy crops. The plant was completed in 2008 after a £1million investment by the farm and generates 300kW of electricity, some of which is used locally but most is supplied to the National Grid for use in homes, businesses, schools or hospitals. Heat produced is used on site by the dairy and to heat staff homes.

The scraped slurry is stored before it is mixed with maize silage and glycerol, for digestion. 90 tonnes of slurry is mixed with 7 tonnes of maize silage and 1 tonne of glycerol per day. The farm grows some 220 Ha of maize of which 50 Ha is used for the digester. Glycerol is used as it is a great catalyst; rich in carbon and enables the slurry/maize mix to create up to 50% more methane. The methane produced is piped to a storage facility before being used as the fuel for a combustion engine which drives the generator.

At the end of the process a digestate remains - approximately 30,000 tonnes per year. Basically this is the slurry / maize / glycerol mix minus the methane gas that has been released. For every 1 tonne of mix which is loaded into the digester, 1 tonne of digestate is produced. This material is virtually odourless and has a very rich organic content which considerably increases soil condition and reduces the need for fossil fuel based synthetic fertilizer.

The visit finished at the dairy office where Tim answered questions from a very interested group.

Our thanks go to Kemble Farms Ltd

N J Handy

FAO all IAgrE members

WESTERN BRANCH: Visit to Germany

THE programme for this trip includes a visit to John Deere Harvester Factory & Vineyard in Zweibrucken; a local vineyard/winery in Bad Durkheim; Dr Carl Benz Auto Museum in Ladenburg;John Deere Werke in Mannheim, including visit to Tractor Factory Museum, presentations and tour of factory.

The expected total cost of the trip is in the region of £600.

For further information and to register your interest please contact:

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For information about other Branch activities please contact the Western Branch: Secretary:

Rupert Caplat
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EVENTS & ITINERARY

SUNDAY 5TH MAY
Travel to Germany.

Heathrow Airport, check-in latest 2.00pm, Lufthansa flight 909, departs 3.10pm. Scheduled arrival Frankfurt Airport 5.50pm. Pick-up by P. Anstee with minibus. Drive to Zweibrucken, arrive 8.30 pm, check-in at Hotel, dinner - Hotel restaurant.

MONDAY 6TH MAY
Zweibrucken & Bad Durkheim: JD Harvester Factory & Vineyard

Drive to John Deere Werke Zweibrucken; Factory Tour 09.00 am, finishes 2.00 pm. Morning coffee and refreshments & lunch (12 noon - 1.00 pm) provided by Factory. Open Q & A session with Factory/Marketing/Engineering personnel 1.00 - 2.00pm.

Drive to Bad Durkheim, arrive 3.45 pm. check-in at Hotel.

Visit wine grower, tour of vineyard/winery followed by special wine tasting. Dinner at vineyard's own restaurant - 7.00 pm.

TUESDAY 7TH MAY
Ladenburg & Mannheim: Benz Museum & JD Tractor Factory

Drive to Ladenburg, guided tour of Dr. Carl Benz Auto Museum 08.45 - 10.30am.

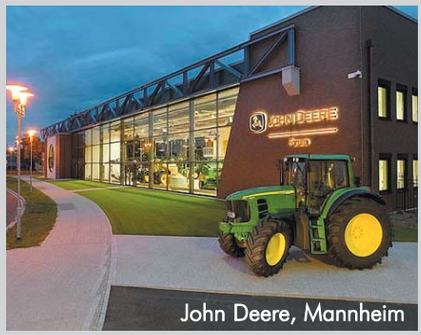
Drive to John Deere Werke Mannheim, visit Tractor Factory Museum. Presentation, start-up & drive-by of selected Lanz Bulldog tractors 11.00 - 12 noon.

Morning coffee and refreshments & lunch (12 noon - 1.00pm) provided by Factory.

Factory Tour 1.00 pm, includes visit to Visitor Centre Open Forum & Company HQ.

Open Q & A session with Factory / Marketing / Engineering / HQ personnel 4.00 - 5.00 pm.

Drive to Hotel and check-in. Dinner - Rheinterrassen Restaurant, Mannheim (outside weather allowing) 7.00 pm.



John Deere, Mannheim

WEDNESDAY 8TH MAY
Sinsheim transport Museum (Concorde and Concordski - a unique experience) and return to UK

Depart Mannheim 08.00am, drive to Sinsheim, visit the Auto and Technik Museum.

Depart Sinsheim 2.45pm drive to Mannheim, meet driver(s) 3.30pm JDWM Gate 1.

Depart Mannheim, drive to Frankfurt Airport, check-in 4.45pm Lufthansa LH 918. Flight departure scheduled 6.10pm, arrives London Heathrow Airport at 6.50pm

IAgrE COUNCIL

Visit to Campden BRI, Chipping, Gloucestershire

THE most recent IAgrE Council meeting took place at Campden BRI, who provide technical support to the food, drinks and allied industries, based in Chipping, Gloucestershire.

Campden BRI is the UK's largest independent membership-based organisation carrying out research and development for the food and drinks industry worldwide. It is committed to providing industry with the research, technical and advisory services needed to ensure product safety and quality, process efficiency and product and process innovation.

Their R&D programme reflects needs identified by industrial members and provides a constantly renewable knowledge base for technology transfer. A continuous programme of investment ensures leading-edge processing and analytical facilities for research and contract work.

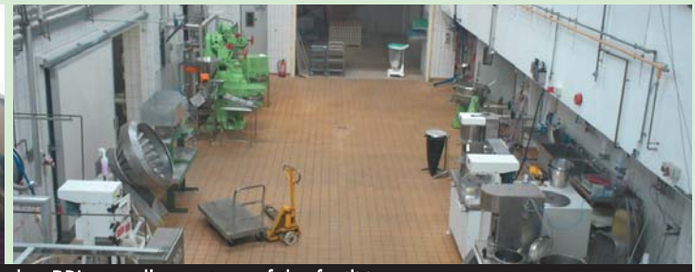
Contract R&D is also carried out on behalf of UK government departments, levy boards, industrial consortia and the European Union. Consultancy work is done under Aid-funded programmes for countries with a developing market economy.

Facilities include three fully equipped food processing halls, product and process development facilities, a substantial, leading-edge sensory analysis suite, and extensive research and analytical laboratories covering microbiology, hygiene, chemistry, biochemistry and microscopy.

The IAgrE Council had a general tour of facilities, including Food Manufacturing Technology; Cereals, Millers & Bakers; Samples receipt & Goods In; Chemistry; Microscopy; Consumer & sensory sciences.

This was followed by presentations from Sam Millar (Director of Technology) who gave an overview of the company and a presentation on the Cereal & Milling operations. Roy Betts (Head of Microbiology) and Chris Knight (Head of Agriculture) also gave presentations on their respective areas.

It was well attended and a very interesting day.



The IAgrE Council members enjoyed a series of presentations at Campden BRI as well as a tour of the facilities

NEWS OF INTEREST TO MEMBERS

Encouraging scientists of tomorrow

Forest Research is engaging with teachers of the future

AS a scientific organisation, Forest Research (an agency of the Forestry Commission) is keen to encourage future generations to recognise the relevance of science to the world around us.

In one recent initiative they have adopted a novel strategy to reach more than one classroom at a time by engaging, not with school pupils, but with their future teachers,

The goal of this work is to raise awareness of the opportunities that forestry can offer across the early high school curriculum to engage young people with science, technology, engineering and mathematics (STEM) before subject (and career) choices are made.

Forest Research worked with Forestry Commission Scotland, Edinburgh University's Moray House School of Education and the IAgrE's Forestry Engineering Group to form the STEM Partnership for the purpose of working directly with trainee teachers.

As an inaugural trial run, twelve design and technology student teachers were challenged to come up with module ideas to engage their pupils in ways that would use trees, woods and the forest environment as a basis to support their learning.

To gauge the efficacy of the modules teachers, pupils and parents from local secondary schools as well as members of the general public were invited to an event held in the Real Life Science Lab at the Royal Botanic Garden Edinburgh where the students demonstrated their unique projects. This event formed part of their teaching assessment.

The outcome was that all the projects were deemed to demonstrate strong interdisciplinary learning links across key curriculum areas including not only the STEM subjects, but also the expressive arts, health and well-being, social studies and literacy.

Since the event, the partnership has received considerable interest from practising teachers and educationalists.

In order to make the projects more widely available the partnership plan to build on the lessons learned by running this project again in 2013, but with the long-term objective of producing educators who understand the opportunities that forestry can provide for strengthening interest in STEM subjects.

For more information please contact:
Steve Penny
Mobile: 0780 890 0331
steve.penny@forestry.gsi.gov.uk

SEM Branch organise competition

Student presentation prize

THE South East Midlands branch of the IAgrE organised a presentation competition for PhD students on the 19th February which took place at Maulden Church hall, Bedfordshire.

Three students were from Cranfield University and one from Harper Adams University College. The topics presented were:

- Mr. Sameh Shaddad (Cranfield)- *'On-line measurement of soil extractable P and pH with visible and near infrared spectroscopy.'*
- Mr Robert Fillingham (Harper Adams)- *'Measuring and modelling the greenhouse gas emissions of grain harvesting systems.'*
- Mr. Matthew Downie (Cranfield) - *'Greenhouse gas emissions measurement in soils.'*
- Mr. Guy Thallon (Cranfield) - *'Soil-for-life: Enhanced understanding of soil and crop health through the macro-aggregation and integration of on-farm datasets'.*

Prize winner Robert Fillingham with SEM Vice Chairman, James Hunter

The first prize went to Robert Fillingham, who received a cash award of £75.

James Hunter who is Vice Chairman of the SEM Branch said, "Robert travelled a long way and showed that he had come to give a well presented and interesting / practical paper. Having only just started his PhD work he has made a lot of good progress and I could see that he was enthusiastic and enjoyed the project."

Zimbabwe success

DR MAXWELL Mutema (CEnv, MIAgrE) has been elected a Fellow of the Zimbabwe Institution of Engineers (FZweIE) and has also been successfully registered by the Engineering Council of Zimbabwe as a Registered Professional Engineer - Zimbabwe's equivalent of the UK Engineering Council's Chartered Engineer status.

The registration follows a rigorous assessment process which takes into account qualifications, technical expertise and experience. Dr Mutema's expertise is in the areas of land and water management, farm building and infrastructure designing and construction and agro-food processing.

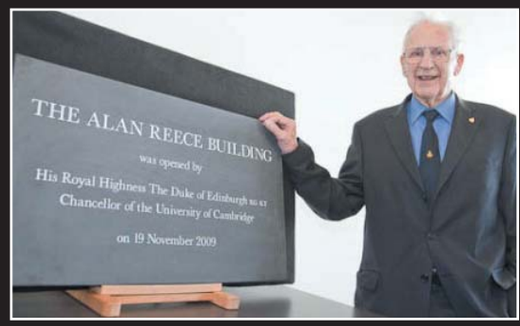
In other developments in his career Dr Mutema was also recently elected as a Fellow of the UK Institute of Food Science and Technology (FIFST); and Fellow of the UK Institute of Agricultural Management (FIAgrM).

Dr Mutema is also a Fellow of the UK Chartered Management Institute (FCMI) and a Fellow of the Institute of Directors (FiOD).

He is a chartered surveyor (MRICS), chartered environmentalist (CEnv), chartered marketer with the Chartered Institute of Marketing and an incorporated member of the Chartered Institute of Building (CIOB).

OBITUARY - Dr Alan Reece

1927 - 2012



RECOGNISED as one of the most successful engineering entrepreneurs of his time, Dr Alan Reece, died in Tyneside on New Year's Eve 2012, aged 85.

One of the North East's most successful businessmen, he was the man behind engineering business The Reece Group which has a turnover in excess of £211 million and 450 employees.

Dr Reece's passion for engineering began in 1947 as a graduate apprentice at Vickers Armstong in Newcastle.

He went on to work at the Ford Tractor Plant in Dagenham and International Harvester in Doncaster before becoming a teacher of agricultural engineering at Newcastle University.

He embarked on his business career at the age of 55 following 30 years of teaching at Newcastle.

He became well-known for his application of soil mechanics principles to the design of earth moving equipment. In the 1980s he designed a highly efficient undersea plough which cut the costs of safely installing telecoms cables and undersea pipelines and increased the reliability of international telephone calls

His first company, Soil Machine Dynamics, an underwater vehicle manufacturing company, was one of the very first university break-out businesses.

Another of his companies, Pearson Engineering, is focused on the design and development of countermine and counter IED equipment that increases the capability of armoured fighting vehicles.

In 2012 the company won a Queen's Award for Enterprise in Innovation for its 'SPARK' mine rollers which have been used in Iraq and Afghanistan and have been responsible for saving hundreds of soldiers from death and injury.

Professor Sir Mike Gregory, Director of the Institute for Manufacturing (IfM), to whom Dr Reece donated £5 million for their new home at West Cambridge, named The Alan Reece Building, said, "Alan Reece was a pioneering engineer and business man who had the rare ability to develop radical engineering ideas through to successful business enterprises.

"He provided a splendid example for the next generation of engineers and his generosity to the IfM made possible our new building which is providing a vibrant focus for manufacturing, education, research and practice."

Dr Reece, who donated more than £16m of his wealth to engineering, humanitarian and local initiatives, was also previously named as the third biggest philanthropist in the UK by *The Sunday Times*. He leaves his partner Margaret, two sons, John and Simon, a daughter, Anne and seven grandchildren.

Membership changes

Admissions

A warm welcome to the following new members:

Associate

Bell J (Northern Ireland)
Chico-Santamarta L (Shropshire)
Clacher I A (Staffordshire)
Dingle S (Devon)
Holding J A (York)
Holding W R (York)
Hollis J (Staffs)
Maher M (Peterborough)

Student

Babcock International

Ackary L
Attride T J
Bartley E J
Burgmans A
Crane L
Dixon J
Donnachie A S
Edwards S
Gregory W
Hunt J R J
Jones T A
Lowe L
Maralle G
Maxwell M C J
McQuigar C
Merralls S
Mitchell G
Mole A S
Oakley J J
O'Neill J J
Perfect W
Phipps C
Potts G
Rato R F F
Ritchie S W
Robinson N
Savill C
Scudamore G L
Sexton W
Steele R
Stevens M
Thompson S D
Underwood M
Woodfield G

Brooksby Melton College

Asher J
Ashwin P J
Bartlett R
Beeston A
Biggs-Croft S S
Brooks J
Clark C
Craggs A G
Durrant M
Freeman T
Gibbons D
Harvey L
Hodgkinson T
Jelley S
Knight P
Koerber A
Rudkin A
Simpson M
Tucker A

Easton College

Barnes J A
Beecroft H
Campion J J
Fincham B J
Fisher A
Hardiman A M
Hunt J W
Nash M J
Neal A
Parker S M
Passmore M
Plant J T
Robbens J
Roy T J
Smith C
Swallow B
Taylor A
Thomas J T
Warnes M P

Harper Adams University College

Atanasov G
Bland H E
Boden P
Bradshaw W J
Brown M
Bushell D
Chapman P
Clarke B
Coles H
Cook E G
Davies R J
Dowling R
Dummett K
Dunthorne W
Eayrs R
Ekis G
Foulkes H
Gibson A
Goody O
Gowan R T
Heminsley J
Hopkins E W
Hopkins S
Howes C
Hyslop D A
Johnson M R J
Jones S
Jones S M
Kay A
McBride D
Metcalfe W R
Meyrick D M
Parfitt S
Pritchard D
Reed S
Shaw S
Shuldham E M
Skea A
Spinney T P
Stevenson J
Sutton T
Thorman J
Thornton D J
Tyler J
Ward E
Warren J
Wood R

South West College Omagh

Adam J
Beggs A
Clarke M
Conn M
Cooper J
Crudden D
Daly P
Devlin P
Donaghy C
Donnelly C
Ellis G A
Henry J
Hopper J
Hunter S
Kiernan P
Long R
Mallon G
McCann R
O'Hanlon A
O'Neill C
Short G
Smith M
Smith P
Somerville M
Thompson D
Watson M

SRUC Barony

Blackstock D D
Brown A R
Bruton R S
Burgess R
Croal G
Dawson R
Gale R
Griffin M
Harding E
Heard A
Irvine J D
JohnstoneB
Loughhead O
MacDonald K
McLaughlin C M
McQueen J
Murphy L
Saunders C
Stitt S
Watt S G
White A
Wild B

Institute of Technology, Tralee

Beirne P
Breen E
Browne J
Brosnan S
Curran C
Devane A
Dillan S
Dunn B
Dwyer S
Fahey D
Fuller D
Gannon D
Gaine A
Golden P
Horan M
Lynch S
McGuire J
Murphy M
O'Connor S
O'Shea D
Reidy E
Thynme D

Warwick University

Woodward R

Deaths

We have recently learned of the death of the following members and we send our condolences to their family and friends:

Mr Walter Clifford Hill (CEnv FIAgrE) (Devon) - a member since 1949

Mr Geoffrey Hanson (FIAgrE) (Derbyshire) - a member since 1977

Transfers

Member

Jackson B J (Ireland)

Associate member

Birch D J (Lancashire)
Campling D M (Lincolnshire)

Associate

Knox D (Suffolk)

Engineering Council

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

Registrations

EngTech

Craig S G (Wiltshire)
Stokes S P (Hampshire)
Coles S M (Northamptonshire)
Burgess G (Leicestershire)

Academic members

Askham Bryan College
Askham Bryan
York
YO23 3FR

SRUC- Barony Campus
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
Newport
Shropshire,
TF10 8NB

Institute of Technology Tralee
Clash, Tralee
Co Kerry, Ireland

Myerscough College
Myerscough Hall
Bilsborrow
Preston
Lancashire PR7 0RY

SRUC - Oatridge Campus
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

Riseholme College
Riseholme Park
Lincoln
LN2 2LG

SRUC - Auchincruive
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
Salford Priors
Evesham
Worcestershire
WR11 5SW

David Ritchie (Implements) Ltd
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

Long service certificates

Name	*Grade*	*Date of anniversay*
60 years		
Philip Anthony Laughton **Orbell**	EngTech, MIAgrE	24 Mar 2013
50 years		
Robert Robertson **Rattray**	IEng, MIAgrE	11 Jan 2013
David Anthony **Skinns**	IEng, MIAgrE	11 Mar 2013
Thomas David Angier **Angier**	MIAgrE	28 Mar 2013
Maurice Arthur **Keech**	FIAgrE	28 Mar 2013
35 years		
John **Roddan**	CEng, FIAgrE	12 Jan 2013
Paul Vincent **Dunham**	FIAgrE	12 Jan 2013
Malcolm Gilroy **Simpson**	EngTech, MIAgrE	20 Jan 2013
John Robert Alderson **Colman**	IEng, MIAgrE	20 Jan 2013
Thomas Martin **Agars**	IEng, MIAgrE	20 Jan 2013
Roger Michael **Weyman**	CEng, MIAgrE	30 Jan 2013
Vernon Charles **Nott**	MIAgrE	20 Feb 2013
William James Hope **Ramsay**	IEng, CEnv, MIAgrE	09 Mar 2013
Peter Robin **Mason**	CEng, MIAgrE	09 Mar 2013
Thomas Alexander **Copland**	CEng, MIAgrE	09 Mar 2013
David William **Russell**	IEng, MIAgrE	26 Mar 2013
25 years		
Clement Krishnanand **Sankat**	CEng, FIAgrE	01 Jan 2013
John **Fletcher**	FIAgrE	14 Jan 2013
Surya **Nath**	AMIAgrE	19 Jan 2013
Mark Andrew **Parnham**	AMIAgrE	02 Feb 2013
William Thomas **Green**	AIAgrE	02 Feb 2013
Francis Gerard **Ward**	CEng, MIAgrE	12 Feb 2013
Damian Neil **Kilshaw**	AIAgrE	16 Feb 2013
James George **Bell**	MIAgrE	16 Feb 2013
Masoud **Shaker**	FIAgrE	16 Feb 2013
Daniel R.P **Hettiaratchi**	CEng, FIAgrE	25 Feb 2013
Martin John **Troughton**	IEng MIAgrE	15 Mar 2013

EVENTS

IAgrE Branch Meetings and Events

Northern Ireland Branch
Wednesday 20 March 2013, 20:00
WIND TURBINES - OPPORTUNITIES AND CONSTRAINTS
Venue: The Glenavon House Hotel, Cookstown
Speaker: Barry Meeke, Silverford Renewables
Venue: Glenavon House Hotel, Cookstown
For further details please contact the Branch Secretary: Ian Duff
Tel: 028 8673 6977
Email: duffi@iagre.biz

South East Midlands Branch
Monday 08 April 2013, 19:30
DEVELOPMENTS IN MOWING OR CUTTING EDGE TRAINING?
Speaker: Ian Mitchell
Venue: tbc
Ian Mitchell, Product Trainer with Cutting Edge Training will review the lastest developments in mower design and control systens to ensure safe working on slopes. This will include a demonstration of a Ransomes 'Highway 3' mower and a remote control machine.
For further information please contact the Branch Secretary, John Stafford.
Tel: 01525 402229
Email: john.stafford@silsoe-solutions.co.uk

East Midlands Branch
Tuesday 09 April 2013, 19:00
VISIT TO BLANKNEY ESTATES LTD + BRANCH AGM
Venue: Blankney Estates, LN4 3AZ
Visit will include a tour of new production facilities at LN5 0AX
For further details please contact the Branch Secretary, Sandy Donald, details below.
Tel: 07977 521231
Email: sandytd2000@tiscali.co.uk

Yorkshire Branch
Thursday 11 April 2013, 19:30
JOHN DEERE + BRANCH AGM
Speaker: Willy Milne, Area Service Manager, John Deere
Venue: Buckles Inn, Bilborough, YO23 3PW
For further details contact Branch Secretary: David Bird (details below) or Branch Chairman Mark Andrews on 0191 569 2380 andrews_mark_a@cat.com
Tel: 01845 526486
Email: davetbird5180210@aol.com

Western Branch
Sunday 5 May 2013 to Wednesday 8 May 2013
VISIT TO JOHN DEERE, GERMANY
This 4-day trip includes a packed programme of visits and activities, including visits to John Deere operations in Zweibrucken and Mannheim. There is also visits to the Dr Carl Benz Auto Museum in Ladenburg and a Vineyard/winery in Bad Durkheim. Travel will be organised by a local travel company and contact details will be issued in due course.
See box on page 29 for programme. Please contact Richard Robinson asap to register your interest.
Tel: 01380 850885
Email: richard.robinson@autoguide.co.uk

Wrekin Branch
Monday 20 May 13, 19:30
SUPACAT AND RNLI - SUBMERSIBLE LAUNCH MACHINE FOR LIFE BOATS
Speaker: Simon Turner, Supacat, and Steve Austen, RNLI
Venue: Harper Adams University College, Newport, Staffs TF10 8NB
For further information please contact the (acting) Branch Secretary: Jim Loynes.
Tel: 07836 602750
Email: jloynes@harper-adams.ac.uk

South East Midlands Branch
Thursday 23 May 2013, 14:30
VISIT TO ALCONBURY WEALD DEVELOPMENT
Speaker: Tim Leathes (Project Director) Ron Henry (Engineering and Multi Utilities Lead)
Venue: Alconbury Weald Development, Alconbury Airfield
Urban&Civic are owners and developers of the former airfield at Alconbury and have ambitious plans to use the brownfield and military infrastructure of the vast site as a foundation for a high tech, high quality, low carbon development for business and homes. An Outline Planning Application will be submitted in Summer 2012 which will set out the extensive engineering investment in to create a zero carbon hub to support 8000 jobs, 5000 homes and link in with extensive landscaping - which will include the planting of half a million trees. This session will give members a chance to hear first hand how the ambitious project will be rolled out over a 20 year period, and to have a tour of the site.
For further information please contact the Branch Secretary, John Stafford.
Tel: 01525 402229
Email: john.stafford@silsoe-solutions.co.uk

Wrekin Branch
June tbc
SUMMER VISIT TO DANIELS MILL, BRIDGENORTH
Venue: Daniels Mill, Bridgenorth
For further information please contact the (acting) Branch Secretary: Jim Loynes.
Tel: 07836 602750
Email: jloynes@harper-adams.ac.uk

Other Events:

Wednesday 20 March 2013
IAgrE
IAGRE YOUNG ENGINEERS COMPETITION
Venue: Aston Martin, Newport Pagnall, Bucks
Contact the IAgrE Secretariat to request your competition kit(s) and for further information about the competition.
Tel: 01234 750876
Email: secretary@iagre.org
Download: www.iagre.org/careers/devcareeryecomp

Thursday 21 March 2013 10.30
Horticultural Engineering Technical Group
VISIT TO BRITISH SUGAR
Venue: British Sugar, Wissington, King's Lynn, Norfolk
Producing more than 400 000 tonnes of sugar annually, British Sugar's factory at Wissington is the largest sugar beet processing

plant in Europe. Over the last few years there has been a major investment at Wissington to improve its operational energy performance while developing a range of successful by-product lines derived from the sugar beet processing residue. The tour of the factory site will include visits to their CHP unit, topsoil, lime, animal feed and bioethanol production plants. We also plan to visit the neighbouring Cornerways (18ha) glasshouse unit which is supplied with 'reject heat' from the sugar beet processing plant.
We shall also be visiting the neighborough Cornerways tomato production unit, supplied by 'reject heat' from the sugar processing plant, which at 18ha is our largest single glasshouse.
The provisional timetable is 1030: tour of the main factory site; 1300 lunch; 1400: Visit to Cornerways; 1530: End. For further information please contact John Weir
Tel: 020 8788 0062
Email: putneyjohn@virgin.net
Web: www.britishsugarbioenergy.com

Thursday 21 March 2013 0900-1600
Inside Government
MEETING THE CHALLENGES OF GLOBAL FOOD SECURITY
Venue: Central London
A forum for stakeholders in food security. To allow delegates to examine the issue of food security in a UK & global context and hear from leading policy experts.
Tel: 0845 666 0664
Web: www.insidegovernment.co.uk/?name=event-details&event-id=115

Thursday 18 April 2013
CTF Europe
CTF MEMBERS' DAY
Speaker: Host: Robert Barnes
Venue: Bedfordshire, UK
Roberts Barnes runs a 12m system.
Email: tim@controlledtrafficfarming.com
Web: www.ctfeurope.eu

Wednesday 24 - Thursday 26 April 2013
IMechE
ESSENTIAL MANAGEMENT SKILLS FOR ENGINEERS
Venue: Keele University, Staffordshire
This 3-day conference is a combination of lectures, workshops, business management exercises and technical visits.
Discounted rates for IAgrE members
Web: events.imeche.org/EventView.aspx?EventID=1742

Monday 13 May 2013
Policy Forum for Wales
MOVING TOWARDS ZERO WASTE FOR WALES
Venue: Cardiff - details tba
Web: www.westminsterforumprojects.co.uk/forums/book_event.php?eid=562

Friday 7 - Saturday 8 June 2013
Engineers Ireland
SPRING EUROPEAN YOUNG ENGINEERS (EYE) CONFERENCE
Venue: Dublin
An event for Europe's young engineers. The theme is "Building networks to the World" and will offer delegates the opportunity to foster new links with their European peers.
Tel: +353 1 665 1300
Email: info@eyedublin2013.com

Monday & Tuesday 10-11 June 2013
IAgrE
MODELLING SPRAY DRIFT FROM GROUND-BASED APPLICATIONS - 2-DAY WORKSHOP
Venue: Cranfield University, Cranfield, Bedford MK43 0AL
a 2-day workshop for all with an interest in modelling spray drift. Further details will be available in due course together with on-line registration.
Tel: 01234 750876
Email: conferences@iagre.org

Thursday, 5th September 2013, 0900
FEG
RESILIENT FORESTRY - ROADS TO MARKET
Speaker: Various TBC
Venue: Newton Rigg Campus
Annual FEG Symposium 2013. Please put this date in your diary NOW! Resilient Forestry - Roads to Market is the working Title. Early Bird prices will be available.
Tel: 07900607785
Email: bruce.hamilton@forestry.gsi.gov.uk

Friday 8 - Saturday 9 November 2013
VDI-MEG and EurAgEng
LAND TECHNIK - AG ENG 2013
The 71st Conference LAND TECHNIK - AgEng 2013 is arranged prior to the world's leading fair on agricultural machinery, the AGRITECHNICA in Hannover, which will start on November 10.
Web: www.vdi-wissensforum.de/en/nc/german-events/detailseite/event/12TA001013/

May 2014
FARMING IN THE PARK
Venue: Hyde Park, London
Web: www.farminginthepark.co.uk/

06 July 2014 to 10 July 2014
EurAgEng
AGENG 2014 - ENGINEERING FOR IMPROVING RESOURCE EFFICIENCY
Venue: Zurich
A conference focusing on the latest research and development in the whole field of agricultural engineering.
Deadlines: Submission of abstracts: 1 November 2013 Submission of Full Papers: 1 May 2014
Contact Robert Kaufman
Email: AgEng2014@art.admin.ch
Web: www.AgEng2014.ch

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

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