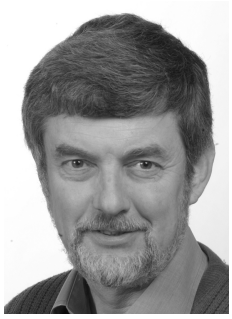
EurAgEng

the european network for engineering and systems in the rural sector

Newsletter Spring 2010

From the Secretary-General

David Tinker



By now, if you are one of the 1700 members with an email address registered with us, you will have had details in the Email Update of how to access the **CABI Agricultural Engineering Abstracts** on-line database (see page 3). If you are one of the 900 (yes 900) members whose email address is not yet registered with us, then please let us know what it is so that we can send you the Email Updates containing hyperlinks of interest. They are sent out about 10 times a year and increasingly include additional points of interest as well as events listings.

To return to CABI, it is a not-for-profit science-based development and information organisation, which prepares the **Agricultural Engineering Abstracts** database, part of the highly regarded **CAB Abstracts** which is used by hundreds of the world's leading research institutions.

More and more members of EurAgEng are losing access to on-line searchable databases as research organisations cut back on subscriptions or close, and we have found that members are looking for on-line access to a searchable scientific database. At the same time we feel that AgEng and other conferences should be searchable on-line. While looking into these needs, EurAgEng was unexpectedly offered funds so that EurAgEng has been able to subscribe to this CABI database at no cost to the membership.

We plan to do a trial for three years, so if you like it please:

- use it,
- tell us that you are using it,
- tell your EurAgEng colleagues to use it for free, and
- tell your other colleagues and collaborators to join EurAgEng to get free access to CABI Agricultural Engineering Abstracts.

In this issue

Finally, we cannot search for and read worthwhile agricultural engineering topics if they are not added to the database, so **please** send details to CABI of conference proceedings and reports that are not widely published as well as papers and refereed articles. The address to send them to is **v.barbosa@cabi.org**. CABI has a large team of translators so do not worry about the language; they will translate from almost any language into English Please include an electronic file (pdf, doc etc) if possible.

Halina Dawson of CABI has prepared an article on page 3 of this newsletter about the database and how to search it. She has described some of the more sophisticated search techniques, I have found it quite straightforward to search using simple techniques. However there are several tutorials covering basic, quick and advanced search techniques available from **www.cabi.org/?site=170&page=2043** or from **www.cabi.org** and link to "Publishing products" and then "Resources for…Database Users" and then "By Search Interface - CAB Direct".

Have fun and find something useful, even if it is to see what is in the database under your name!

While I have been looking on the CABI website I was diverted to read some of the blogs prepared by the staff and found one from Vera Barbosa, the editor of Agricultural Engineering Abstracts. It was entitled *50 Best Inventions of 2009* and with full acknowledgement to Vera for finding this, I've copied most of the 16th Best Invention below, since it backs up the item on Philips Home Farming that appears on page 7 of this newsletter.

An example of VertiCrop

VertiCrop (number 16) is a hydroponic-farming system that grows plants in rotating rows, one on top of another, and has already proved to be a success. The VertiCrop hydroponic vertical farming system was pioneered by Valcent Products eu Ltd (www.valcent.eu) and was presented at the recent Dubai forum: "Architecture for Sustainable Societies". The rotating system gives the plants the precise amount of light and nutrients they need, while the vertical stacking enables the use of far less water than conventional farming. Best of all, by growing upward instead of outward, vertical farming can expand food supplies without using more land. The rotating hydroponic technology enables high-density vertical growing, with more plants being grown in less space and producing crop yields of up to 20 times higher than conventional farming methods. Tom Bentley, Director, Business Development for Valcent Products (eu) Ltd said in Dubai: "the world population is growing, food supply is shrinking, water supplies are becoming more limited, and food production is competing for land with housing and the production of fuel crops; we have to make better use of available land".

I urge you to check the blogs on CABI as they claim to be "Hand Picked and Carefully Sorted" and there is also the Biofuel Information Exchange. All links are on the home page at **www.cabi.org**.

Tractors and Style - getting closer at last

Steven Vale

It is difficult to describe a tractor as glamorous and sexy, but today's modern looks confirm that tractor design has caught up with the motor industry. But which direction will it take in the future?

Tractor styling is big business. During the past decade box-shaped designs have been ditched in favour of stylish curves and clever use of lights. The result has completely changed the look of many of today's tractors. There is no clearer proof of this than Zetor and Landini, brands that have been transformed with a bit of creative imagination.

Tractor styling for the immediate future is all about familiarity. Manufacturers are looking to give their complete ranges the similar family look and feel both, not just on the outside but also on the inside. This has much to do with making the best use of components.

The big question now is whether we can expect more change in the future. New Holland's hydrogen-powered NH 2 prototype provides a glimpse of what its tractors could look like in the near future - say three to five years. It is still largely based along similar lines as we know today. But the artist's pen is allowed to be a bit more creative.

The refreshing design was dreamt up in Turin by Fiat's Central Design Studio. Until recently it worked only on Fiat commercial vehicles. But things are changing because in addition to Alfa Romeo and Maserati, this department is now responsible for the looks of future CNH tractors.

The design department has let its imagination run wild with the XTE 9 concept - a blend of future tractor and motor car styling. It is hard to imagine a vehicle like this ever working on European farms, but who knows?

Valtra also provides a hint of the direction its tractors could take in the future. Design manager Kimmo Wihinen is working on several projects, one of which stretches all the way to 2020. The inspiration for his ideas comes from some surprising sources. "A design idea can come from something as simple as a bottle of shampoo," he says.

Some design work is done using computer-based 3D programmes, but he stresses that it would be a mistake to think that new tractors can be designed using software alone. "Good old fashioned pen and paper are also still used for sketching ideas and showing them to colleagues," he adds.

Although many sketches are destined for the rubbish bin, some do make it to the computer stage. One provides a sneak preview of a possible future reverse drive concept. The equal-wheeled tractor features a cab that can rotate through all planes.

Chicago-based Montgomery Design International provides a glimpse of what the Case IH Quadtrac could look like in the future. Originally conceived as a near-future concept, it will be interesting to see whether this 1,000hp tractor ever goes into production.

American company Pope Design is also busy with future tractor design concepts, and in particular an 80-tonnes eight-wheeled articulated tractor. It boasts twin engines and an output of 2,000hp!

Of course, engineers do not have a free hand when dreaming up a new tractor design. The biggest single change on all of today's tractors is in the engine department, and the need to meet ever tightening engine emission regulations. Consuming huge sums of R+D funds, the engine hood has to be able to not only cover the engine, but also provide sufficient grilles for cooling.

The irony is that by the time the final stages of the emissions rules are in place there could very well be an alternative to the diesel power source. Engine makers obviously argue otherwise, but New Holland's NH2 is proof enough that from a technological point-of-view, fuel cells are a real possibility.

Each year Massey Ferguson earmarks tens of millions of Euros for R+D at its Beauvais tractor facility. Heading up the 320-strong engineering team, Malcolm Shute makes no secret of the fact that the power source has a big impact on exterior tractor design. "On-board fuel cells would dispense with the need for an internal combustion engine," he says. "This could have a huge effect on tractor architecture."

Perhaps the concept highlighted on this page provides a glimpse of what an MF fuel-cell tractor could look like? It certainly appears to have electric motors to the wheels.

Finally, there is something else that could dictate tractor looks in the future. The advances made on the navigation front ultimately pave the way for driverless tractors that could dispense with a cab. Currently, legislation prevents this. Perhaps this will change in the future?

This article is based on an item which appeared in Farmers Guardian on 21 Dec 2009. The author, Steven Vale, is the European machinery correspondent for a number of titles including Farmers Guardian and Earthmovers Magazine. He lives in Holland and can be contacted on <svale@quicknet.nl>

New source of information for members

Halina Dawson, Content Manager for Environmental Sciences, CABI

EurAgEng is pleased to announce that the bibliographic database ***Agricultural Engineering Abstracts*** is available as a service to members on the EurAgEng website **www.eurageng.eu**.

Produced by CABI, a not-for-profit science-based development and information organisation, the *Agricultural Engineering Abstracts* database is a subset of the highly regarded ***CAB Abstracts*** which is used by hundreds of the world's leading research institutions including three-quarters of all US land-grant universities together with many premier universities and research centres across the globe.

Agricultural Engineering Abstracts is a fully searchable abstracts database of internationally published research on agricultural engineering, from properties of soil, crops and materials to soil and crop management, storage of processed products and treatment of the wastes produced, and alternative energy sources such as biofuels. Updated weekly, the database includes a fully searchable backfile to the year 1990 and includes over 100,000 research summaries with over 8,000 records added to the database annually. Also included are over 2,000 full text records where the bibliographic record has a link to a PDF of the document held in CABI's Full Text repository - combine your searches with **sc:ft** to find these full text papers, eg **harvesting AND sc:ft**

The full text of papers from proceedings of many conferences sponsored by EurAgEng, including AgEng2008 and AgEng2010, are currently being added to the database and can be found by searching as below, where IT is item type (conference proceedings or individual conference paper) and PB is the publisher (you need an exact match for publisher especially if you use quotes), eg
it:conference AND pb:"european society of agricultural engineers"

Hosted on the CAB Direct platform, information on basic searching techniques for searching *Agricultural Engineering Abstracts* can be found on the Database Users pages of the CABI website (www.cabi.org/default.aspx?site=170&page=2043). However, to give you a flavour of what the database contains, several searches of current topics in agricultural and biosystems engineering are presented below.

For example, the technique known as controlled traffic farming involves using the same wheel tracks to reduce soil compaction in fields thus increasing crop yields. Papers can be located by typing the phrase "controlled traffic farming" into the Search box. In a similar fashion to searching Google, by enclosing the phrase in quotes, you can force CAB Direct to search for the exact phrase. Otherwise it ANDs the search terms together, searching for controlled AND traffic AND farming which might display results that you do not want.

Other records on precision farming techniques can be located using the term "precision agriculture", and the most specific records by limiting it to the descriptor or keyword field using a colon, thus: **de:"precision agriculture"** Equally, brackets can be used to group terms together, eg
de:"precision agriculture" AND (de:sprayers OR de:"spraying equipment")

You can use the CABI Thesaurus (click on word Thesaurus above the Search box) to help find terms such as the list of useful descriptors for spraying in the box on the right. The Thesaurus is particularly useful for searching for similar and related terms but you can do an initial rough search and then use the descriptors attached to individual records to search further. Click on descriptors listed down left hand side of the screen next to record bibliographic details and abstract.

Spraying descriptors
- atomizers
- droplet size
- nozzles
- spray booms
- spray guns
- aerial spraying
- spraying equipment
- band spraying
- drift spraying
- electrostatic spraying
- ultralow volume spraying
- intermittent spraying
- high volume spraying
- spot spraying
- foliar spraying
- mist blowers

Another area of interest at the moment is the production of biofuels. Because of concerns over land diversion into biofuel production taking away valuable cropland from the growing of crops for food, research is focusing on the development of second generation biofuels using enzymes to break down crop biomass and waste into sugars which can be fermented into ethanol. The *Agricultural Engineering Abstracts* database has an extensive collection of records drawn from a range of publications both mainstream and obscure from all corners of the world. You can search for these using a simple search string then use the descriptors displayed down left-hand side to narrow your search, eg
(biofuels OR biodiesel) AND enzyme
or just use the single term **saccharification**

The database records are also indexed with subject classification codes (CABIcodes) which can be useful in confining searches to groups of records. For example, to find records on the ploughing of field crops, use the CABI code for field crops which is FF005 (as opposed to FF003 for horticultural crops or FF007 for forage and fodder crops), eg
de:ploughing AND cc:ff005

The box below gives some examples of useful CABIcodes, and the full list can be found on the CABI website (http://www.cabi.org/Uploads/File/User Guides/CABICODE Alphabetical List.htm).

Useful current CABI codes

NN000	Engineering and Equipment [General]
NN050	Automation and Control
NN300	Farm and Horticultural Structures
NN400	Agricultural and Forestry Equipment [General]
NN460	Cleaning, Grading, Handling, Storage & Transport Equipment
NN600	Processing Equipment and Technology

Who can resist looking up their own name or names of other collaborators on the database? You can search for author names using author to find authors, editors, author variant names, etc, for example **author:tinker-d**

If after searching you fail to find what you want you can always call in the experts. Contact Vera Barbosa (v. barbosa@cabi.org), the editor of *Agricultural Engineering Abstracts* who will be pleased to help you by suggesting search terms and/or suitable search strings.

Conservation Agriculture and the Tractor Designer

A personal view from Graham Edwards, FIAgrE MSc
Trantor® International
Chester, UK

The challenge facing European agricultural engineers as we enter a Conservation Agriculture world is a formidable one. Radical change comes to us at a time when world finance and banking issues are central but population growth, ever demanding food production, peak-oil, oil-price escalation, finite soil resources and the compaction and erosion of soil have to have logical and relevant inputs from all agricultural engineers, including members of EurAgEng.

There are few farmers who were not brought up on the best ways to plough the soil and there are few EurAgEng members who were not taught about traction, draw-bar pull and the importance of having enough tractor weight and placing it where it is most useful - **for ploughing**. Even today, it would be impossible to publish a farm tractor and farm machinery article, book or paper if the editor restricted authors by saying to them "the word *ploughing* must not be used".

Whilst Conservation Agriculture and Sustainability are matters of great importance to the farming world, the implications for our new agricultural engineering world in matters of farm mechanisation are hardly ever heard, and certainly not in those centres of industrial farm machinery production which sell to farmers. It is essential that agricultural engineers understand the fundamental changes and become proactive leaders as the real experts in the world.

One of the biggest entrenched problems concerns tractor and implement combinations. The principal design feature of tractors lies in their ability to plough. Big wheels and lots of weight in the right places have been a central design feature in historical farm tractor design.

In the last ten years there can be seen to be a change in thinking. This has been backed up by studies, one in particular in the UK, that highlighted that high draught work is done for much less working-time on most farms than work involving transportation, low-draught and power take-off.

Another factor in the change of thinking is much easier to understand and involves the importance of No-Till or Direct Drill agriculture in arid areas, amounting to 65% of the world's farmed land, and Min-Till (minimum tillage) in temperate regions. These Conservation Agriculture techniques, seek to preserve the soil by "tickling it", rather that "excavating" it by deep-ploughing (see the Min Till Conservation Agriculture guide, 2009 Edition, Published by Sulky-Burel France).

Looking at tractors and their implements and considering the rising cost of fossil fuel and the problems caused by soil compaction, it is essential now to consider reducing the weight of these combinations, increasing their speed (both for in-field working and between-field transportation) and using aerospace materials, including composites, in the design and construction of new and different implements and tractors. This last area has been the focus of some of the lightweight high speed tractor development work by the Trantor product team in the UK.

In case EurAgEng members who are equipment designers consider starting with existing farm machinery, they should think again. When the tractor and implement is too heavy and there is a desire to reduce the load on the soil, then techniques such as making existing tractors lighter, putting wider tyres on the combination and creating controlled traffic systems should be seen only as measures to ease historical and current design disasters. These techniques cannot be acceptable to the best and most professional of EurAgEng members.

Conservation Agriculture must involve a revolutionary approach to farm mechanisation and improved productivity. Alas, in many cases, we will need to think again. A blank piece of paper could be a useful starting point for many European agricultural engineering designers.

Note from the Secretary General

Many of you will have heard of **Trantor**, the TRANsport first tracTOR and know of its development from the early 1970s. Although sold only in small numbers in the UK, it is still in production in India.

Trantor Mk 2

Do you need staff?

If you look at the EurAgEng web site <www.eurageng.eu> you will see a section ***Jobs.*** We have had several advertisements on the site, generating income for the Society. Next time you are recruiting staff, please consider placing an advertisement with us on the web. It does not cost much and it reaches a very wide and appropriate audience. Also, it can be arranged very quickly. Contact Mike Hurst at <web@eurageng.eu> if you are interested.

EurAgEng Award of Merit 2010

What is it?

It is the highest honour that the Society can bestow. The award is made to a leading individual for his or her major contribution to the success of engineering for agriculture and for the rural sector in Europe.

A bronze statuette, called "Earth Man Tool Sky", is a model of an original statue made in oak and which stood about 2.7m tall. It was housed at the National Institute of Agricultural Engineering NIAE), Wrest Park, Silsoe, Bedfordshire, UK which was later to become Silsoe Research Institute (SRI).

The original was sculpted by Lee Grandjean and unveiled on 9 July 1984 to commemorate the Diamond Jubilee of the NIAE. Following the closure of SRI in March 2006, the statue was returned to the sculptor. The Director (Bill Day) and Governors of Silsoe Research Institute arranged for the sculptor to create the statuette in bronze. Several copies have been cast and donated to EurAgEng.

Who will receive it?

It is expected that the winner will be either a leading figure in the industry, or, if from academia, will have strong associations with industry and/or will have made a contribution to engineering innovation that has been widely recognised.

How is the winner chosen?

Any member of EurAgEng or national member societies throughout Europe may nominate an individual for the award.

Nomination forms are available to download from www.eurageng.eu and must be returned to the Secretariat by 14 May 2010.

Nominations will be judged by an Award Committee in terms of the impact of the engineering products, services or innovation in which they have had a strong association and played a leading role. The winner will be announced at Clermont Ferrand AgEng2010 on 7 September.

Note from the editor

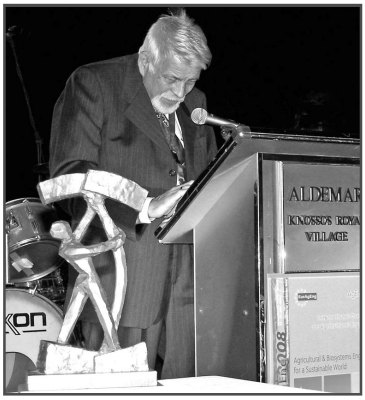
If you are interested in the history of Wrest Park, Silsoe, a fascinating book has recently been published called "Agricultural Engineering - The Wrest Park Story 1924-2006". Copies can be ordered through the UK national society and cost £25 (UK), £28 (Europe) and £30 (rest of world). Please send an email to Sylvia@iagre.org for further details.

Award of Merit Winner 2008

Dipl Ing Michael Teich

EurAgEng was very proud to award its most prestigious award, the Award of Merit, to Dipl Ing Michael Teich, an engineer who had recently retired after 39 years of service from the leading tractor company, John Deere.

Michael Teich grew up with a strong farming background and achieved his engineering degree in 1969 from Munich University. During his career at John Deere he contributed to a great many design features which helped to make John Deere such a leading manufacturer of tractors. Features he has been involved with include the concept of the modular tractor, the steel frame, power reversers, rear hitch geometries, styling concepts and many more. He did this work not for one range of tractors but for three, the 5000, 6000 and some of the 7000 Series. The extent of his innovations is evidenced by the large number of inventions covered by the 168 Patents and 309 Protections of Rights with his name on them.



Dipl. Ing Michael Teich addressing AgEng2008 delegates after the presentation in Crete

Today more than 50,000 tractors per year with design concepts initiated by Michael are built in the four factories around the world at Mannheim, Saltillo, Horizontina and Waterloo. Mannheim alone builds one of these tractors every three minutes!

However Michael has not only been prolific in designing tractors he has been involved in operator safety and protection, passing on the views of the industry. Within John Deere, Michael is known for his incredible enthusiasm about his work and for the inspiring nature of his personality. This is most important in encouraging the next generation and also passing on the love of engineering as well as the skills needed to ensure that products are truly world beating, and given the themes of the AgEng Conferences, the need to be sustainable and help save the world.

Michael was the recipient of the Max Eyth Honorary Award in 2001 and several years later at his retirement, senior John Deere Vice Presidents attended the ceremony.

Among the compliments that they paid to Michael were:

- *his work contributed to the success of Deere and to customised farm solutions,*
- *he has an extraordinary understanding of tractors,*
- *he is inspiringly oriented to develop solutions for the future, and*
- *he is a talented technician and a genius of an engineer!*

EurAgEng was pleased and privileged to honour Dipl Ing Michael Teich with the Award of Merit, and would also like to wish him a long and happy retirement.

Sponsored Events

Full details on sponsorship of events and how to apply can be found at <www.eurageng.eu/events.htm>

25-27 May 2010
2nd International Conference FRIAR 2010 on Flood Recovery, Innovation and Response
Organiser: University & Polytechnic of Milan, Wessex Institute of Technology and University of Wolverhampton, UK
Venue: Milan, Italy
Web: www.wessex.ac.uk/conferences

26-28 May 2010
3rd International Conference DEBRIS FLOW 2010
Organiser: University of Milan, Italy and the Wessex Institute of Technology, UK
Venue: Milan, Italy
Web: www.wessex.ac.uk/conferences

7-9 June 2010
17th International Conference KRMIVA 2010
Venue: Opatia, Croatia
Web: www.krmiva.hr

16-18 June 2010
Sustainable Rural Life - Engineering Solutions for Neo-Rural Areas
Organiser: EurAgEng Working Group RD27
Venue: HAMK University of Applied Sciences, Hämeenlinna, Finland
Web: www.hamk.fi/sustainablerurallife

6-8 September 2010
AgEng2010 CF - International Conference on Agricultural Engineering "Towards Environmental Technologies"
Venue: Clermont-Ferrand, France
Organiser: Cemagref, SitmaAFGR and AFEID
Web: www.ageng2010.com
Email: info@ageng2010.fr

21-23 September 2011
11th International Congress on Mechanisation and Energy in Agriculture
Venue: Istanbul, Turkey
Organiser: Namik Kemal University
Email: bakdemir@nku.edu.tr

8-12 July 2012
CIGR-AgEng2012 International Conference of Agricultural Engineering "Agriculture & Engineering for a Healthier Life"
Valencia, Spain
Web: www.ageng2012.org

Other Events

7-9 April 2010
APLU and ICA bi-annual joint conference "Doctoral and postdoctoral professional development in Agricultural and Life Sciences - Challenges for the next decade"
Venue: Ghent University, Belgium
Web: http://www.fbw.ugent.be/APLU_ICAconference2010/

13-14 May 2010
Biosystems Engineering Conference
Venue: Estonian University of Life Sciences, Tartu, Estonia
Web: http://bse2010.emu.ee/

26-28 May 2010
Biosensors 2010 - 20th Anniversary World Congress on Biosensors
Glasgow, UK
Web: www.biosensors-congress.elsevier.com

13-17 June 2010
17th CIGR World Congress "Sustainable Biosystems through Engineering"
Venue: Quebec City, Canada
Organiser: Canadian Society for Bioengineering (CSBE/SCGAB)
Web: www.cigr2010.ca

20-23 June 2010
ASABE 2010 - Annual International Meeting
Venue: David L Lawrence Convention Center, Pittsburgh, Pennsylvania, USA
Web: www.asabemeetings.org

18-21 July 2010
10th International Conference on Precision Agriculture (ICPA)
Venue: Denver, Colarado
Web: www.icpaonline.org/

15-19 September 2010
IBS2010 - 14th International Biotechnology Symposium and Exhibition
Venue: Rimini, Italy
Web: http://www.ibs2010.org

19-21 September 2010
3rd Conference on Precision Crop Protection
Venue: Bonn, Germany
Web: www.precision-crop-protection.uni-bonn.de
Email: i-sikora@uni-bonn.de

5-10 June 2011
Greensys2011 - Advanced technologies & management towards sustainable greenhouse ecosystems
Halkidiki, Greece
Web: www.greensys2011.com

29 June to 1 July 2011
XXXIV CIOSTA & CIGR Section V Conference
A forum for research, development and application of efficient and safe technology and management in production processes of agriculture and forestry
Venue: Vienna, Austria
Web: www.nas.boku.ac.at/ciosta2011.html

19-23 September 2011
WEF 2011 CIGR International Symposium on "Sustainable Bioproduction - Water, Energy and Food"
Venue: Tokyo, Japan
Web: http://www.cigr2011.org/

16-19 September 2014
The XVIII CIGR World Congress 2014 on Agricultural & Biosystems Engineering - Upgrading Our Quality of Life
Beijing, China
Email:cigrwc2014@yahoo.cn

Growing your own

The ***Philips Design Probes Program*** is a foresighting initiative which tracks emerging developments in five main areas - politics, economics, environment, technology and culture. The outcomes of this 'far-future' research are used to identify systemic shifts and anticipate changes in future lifestyles that could affect business in years to come and that could lead to new areas in which to develop intellectual property.

The Probes Program has been further extended with three explorations into the area of food. These projects - Diagnostic Kitchen, Food Creation and Home Farming - take a provocative and unconventional look at areas that could have a profound effect on the way we eat and how we source our food 15-20 years from now.

"We were very interested in new ways of looking at what we eat and the processes that food undergoes before we consume it," says Clive van Heerden from Philips Design. These investigations took into consideration wider societal trends like the shift in emphasis from curative to preventative medicine, the growth in popularity of organic ingredients, genetic modification, land use patterns in growing food, the threat of serious food shortages and rising food prices. Three interlinked areas of exploration were identified: the Diagnostic Kitchen, Food Creation and Home Farming.

Home Farming, as the name suggests, explores growing at least part of our daily food inside our houses. "People are increasingly concerned about how their food has been manipulated and processed, genetic modification, global shortages, environmental degradation through monoculture, the distance food travels before reaching their plates and many other related issues," says van Heerden.

He adds, "One way of addressing such legitimate concerns is to source the food ourselves by having a biosphere in our living rooms." This ***Biosphere Home Farm*** contains fish, crustaceans, algae, plants and other mini-ecosystems, all interdependent and in balance with each other. It is designed to occupy a minimum of floor space and instead to stack the various mini-ecosystems on top of each other. Water filtration, recycling of nutrients and optimum use of sunlight are all central to its appeal. Making families all over the world at least partly self-sufficient in this way has obvious appeal.

Philips Biosphere Home Farm

About the authors

Two of the members of the Philips Design Probes team are Clive van Heerden and Jack Mama. They both come from a design background having qualifications from the Royal College of Art, and both have received design awards for their work. Clive van Heerden is Senior Director of Design-Led Innovation at Philips Design and Jack Mama is Creative Director of the Probes Program.

Note from the Secretary-General

We would be glad to receive articles from laterally-thinking biosystems engineers who have experience of similar types of conceptual projects. We know it's not easy for many of us to think like this!

Thanks are due to the Philips Design Food Probe Project for permission to use the information and photo. Information on the other aspects of the Phillips Design Probes Program can be found at www.design.philips.com/probes/whataredesignprobes/index.page.

New from Biosystems Engineering

Members of EurAgEng are already able to subscribe to Biosystems Engineering at a reduced rate. In 2010 personal subscriptions cost GBP234 + local value added tax (vat) for a hardcopy delivered by post.

We are now able to also offer a personal on-line subscription to Biosystems Engineering for just €90 (euro) + vat. To qualify for this offer you must be a member of your National Society and a member of EurAgEng.

If you are interested in more details about the personal online or hardcopy subscriptions, please contact Nicky Tinker at secgen@eurageng.eu or visit the members' area of the website www.eurageng.eu.

Are you getting it?

Over 900 members do not have a current contact email address on our database and so are unable to receive the latest monthly updates with news, conference notices and job adverts. Please check your contact details via the members' page on the website, inform us of any changes, and make sure you are not missing out on the latest information. The address is <www.eurageng.eu> then click on Members' Login.

AgEng conferences into the next decade . . .

They keep on coming

AgEng2010 Clermont Ferrand, France
6-8 September 2010
Towards Environmental Technologies

AgEng2010 Clermont Ferrand, France

Submission of Abstracts is now complete and registration will open shortly for the conference via the website www.ageng2010.com . Make sure you have these dates in your diary now!

Organised by CEMAGREF, there is a wide range of topics being covered and the conference is being held in collaboration with ECOTECHS 2010 and ROBOTICS 2010 which will take place on the 3-4 September in Clermont Ferrand, so visit the website for more details.

Clermont Ferrand is a very attractive city, once two cities, Clermont and Montferrand, with a purpose built conference centre at the Polydome. Public transport is easy and there is a fast and efficient train service from Paris as well as regular air links. There is hotel accomodation to suit all budgets.

CIGR-AgEng2012 Valencia, Spain 8-12 July 2012

Agriculture & Engineering for a Healthier Life

In 2012 Valencia hopes to become the 'capital of Agricultural Engineering' with CIGR and EurAgEng celebrating a joint conference organised by the Sociedad Española de Agroingeniería (SEA). Visit www.ageng2012.org to find out more about the range of topics being covered, parallel events going on, important dates and the exciting city of Valencia.

AgEng2014 Zurich Switzerland

Dates to be confirmed for the 30th anniversary AgEng conference to be organised by our Swiss colleagues and being held in the historic city of Zurich in July 2014.

AgEng2016 Aarhus, Denmark

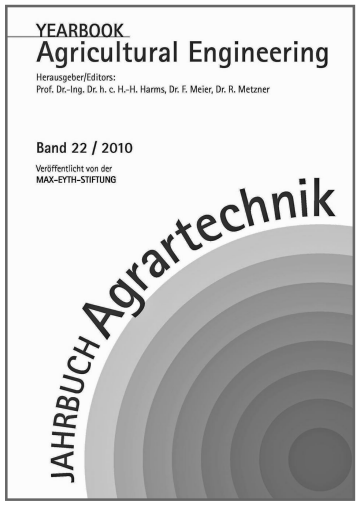
To be held at Aarhus University in Denmark, 2016 will see a joint regional conference with CIGR. Preparations are already underway.

So there is plenty to look forward to in the agricultural engineering world and colleagues from academia, industry, food production, manufacturing and service providers are all welcome at any of these events. Visit www.eurageng.eu/events to keep up to date with what is on.

Yearbook Agricultural Engineering 2010

An acknowledged source of information on recent developments in agricultural engineering is the German/English ***Agricultural Engineering Yearbook 2010 / Jahrbuch Agrartechnik*** edited by EurAgEng members Prof Dr Hans H Harms, Dr. R. Metzner and past-president Dr Friedhelm Meier, with many other EurAgEng members involved in preparing chapters.

This is the 22nd Volume of the Yearbook which first appeared in 1988. It summarises research in the field of agricultural technology over the past year and also discusses the market for equipment and emerging topics. The Yearbook is a new release on the DLG Bookshop for €49.90 (including German sales tax). The website is at www.dlg-verlag.de/shop/product_info.php/info/p1461_Jahrbuch-Agrartechnik-2010.html.



Goodbye Silsoe

EurAgEng is on the move. By the time this newsletter is published, the office will have moved from Silsoe where it has been since EurAgEng was formed in 1992, to Cranfield University Campus, about 13miles (20km) away. The new address and telephone and fax numbers are given below, but the email and web addresses will be unchanged. We have enjoyed being at Silsoe and have felt welcome there. We now look forward to being as much at home at Cranfield.

Published by European Society of Agricultural Engineers
The Bullock Building, University Way, Cranfield, Bedford, MK43 0ST, UK
Opinions contained in this Newsletter are not necessarily those of EurAgEng

Email: newsletter@eurageng.eu Tel: +44 (0)1234 750876
Web: www.eurageng.eu Fax: +44 (0)1234 751319
Editor: Michael Hurst ISSN 1462-0669