

News from EurAgEng

Conference Issue - July 2012



CIGR-AgEng 2012 Valencia, Spain 8-12 July 2012 *Agriculture & Engineering for a Healthier Life*



On behalf of the European Society of Agricultural Engineers (EurAgEng), the International Commission of Agricultural and Biosystems Engineering (CIGR) and the Spanish Society of Agricultural Engineering (SEAgIng), I welcome you to the International Conference of Agricultural Engineering CIGR-AgEng2012 here in Valencia.

EurAgEng and CIGR jointly celebrate this International Conference on Agricultural Engineering. In addition there are several Special Parallel Conferences including one on mechanisation and post-harvest technology in developing countries organised by UNIDO and FAO.

The Conference covers emerging research and new engineering solutions for food production and rural activities, as a means to enhance human well-being and promote social benefits. New concerns include methods of agricultural, livestock and forestry production, and how to preserve the natural resources and landscape by applying modern engineering concepts. Healthier production systems need to encompass higher social and economic benefits.

The CIGR-AgEng2012 Conference is aimed at academia, industry, producers, manufacturers and service providers from all over the world for discussions about novel approaches to integrate agriculture and engineering to enhance the quality and expectancy of life. PhD students, members of CIGR and EurAgEng, representatives of developing countries and industry are all especially welcomed and encouraged to participate fully in this CIGR-AgEng 2012 Conference.

I welcome you here to Valencia and I look forward to meeting many of you during the next few days.
Florentino Juste, President of CIGR-AgEng2012 Conference.

LAND.TECNIK-AgEng 2013 Hannover - Don't forget **Hannover Exhibition Centre, Germany 8-9 November 2013** *Opening event of AgriTechnica*

Attend innovative presentations and join in discussions with experts of engineering, product design, management and science. The Conference focuses on: tractors, field machinery, harvesting technology, power transmission and the sensors, control systems, data processing and IT technology to make it all work! Abstract submission opens mid-January 2013.

AgEng 2014 Zürich - Will you be there? **Zürich, Switzerland 6-10 July 2014** *Engineering for Improved Resource Efficiency*

The Organising Committee of AgEng2014, chaired by EurAgEng President, Robert Kaufmann, invites you to take part in AgEng2014. The following topics will be addressed: Land Management and Landscape, Energy Efficiency, Controlled Traffic Farming/Reduced Tillage, Rural Buildings, ICT in Agriculture, Machinery, Animal Production and Welfare, Ergonomics, Emission Reduction, Grassland Technology, Irrigation, Biomass and Renewable Energy.

To register your interest and to find out more about AgEng2014, visit the website www.ageng2014.ch. To find out more about Zürich and its beautiful surroundings visit this special YouTube film <http://tinyurl.com/Zurich-AgEng>



*EurAgEng is the European Network for
Engineering and Systems in the Rural Sector*

Peter's Goodbye

Outgoing President, Peter Schulze Lammers

At this AgEng2012 conference in Valencia, my presidential term of office will end and I will hand over to Robert Kaufmann from Agroscope Reckenholz-Tänikon research station in Switzerland. Nowadays EurAgEng is a consolidated professional society consisting of 20 European national societies and although autonomous in its actions, it relies strongly on the national societies and their support, particularly for running the AgEng conferences.

The biannual AgEng conference is EurAgEng's main event. During my term it was held in Clermont Ferrand in 2010 and was organised by the French community. In the past the French community was less well represented within EurAgEng, because the affiliation was spread over several organisations. However AgEng2010 highlighted a well-organised national community making the conference a real European event with a nice French touch.

The forthcoming AgEng conference in Valencia promises to become one of the largest conferences held by EurAgEng. Past President, Florentino Juste, together with his colleagues in Spain, have launched a new concept organising the conference together with several parallel conferences as well as joining forces with the worldwide agricultural organisation, CIGR. All the activities are gathered under the CIGR-AgEng2012 umbrella with a single registration. More than 1600 abstract submissions indicate that the concept is working.

The next conferences are already decided with 2014 in Zürich, Switzerland and 2016 in Aarhus, Denmark which means that planning and conference organisation is well advanced. At the same time the joint conferences with the German national society VDI/Max Eyth, held in the odd-numbered years starting in 2007 in Hannover, have grown significantly with increasing audiences and excellent participation from agricultural engineering industries.

One focus of the last two years has been to include Eastern European countries in EurAgEng activities. Although there have been steady attempts before, the more recent consolidation of their national societies has meant that we are closer to expanding the family of EurAgEng national society members. Unfortunately the progress in membership is still slow and we must continue to encourage East and South East Europeans to join EurAgEng. One

strategy has been to invite young professionals from these countries to the conference in Valencia at a special registration rate. Financial issues are still the most common reasons for these countries to hesitate joining EurAgEng and attending the conferences.



Following the success of working with the Land.Technik conference in Hannover, EurAgEng decided to present the 2011 Award of Merit to Franz Grimme at this event to recognise that the prize is awarded to an outstanding industrial figure. Subsequently the EurAgEng Executive decided to split the Award of Merit into two awards, one dedicated to an outstanding industrial figure (Award of Merit - Innovation Into Practice) and one for scientific merit (Award of Merit - Scientific Understanding) to be presented at alternate AgEng conferences. Additionally the award programme has been extended to recognise younger European agricultural engineering professionals who have demonstrated excellence in the early stage of their career. The Francis Sevilla Young Professional Award is named in memory of a founding member, and first president of EurAgEng. The winners will be announced at the prize-giving.

EurAgEng seems to me to be moving forward not only by representing the national societies in Europe but by becoming an indispensable part of agricultural and biological engineering activities in Europe. The efforts in networking to participate in European research programmes are now increasingly based on the institution of EurAgEng. In future these activities need to be developed more professionally. ENGAGE, as part of EurAgEng, is in a perfect position to develop this idea.

Facing the current challenges of agriculture in Europe, our society is in a healthy state creating ideas, transferring research results and scientific based technologies into practice. In the future too, technology will be a prerequisite for producing food, feed and fibre as part of a healthier life, as the CIGR-AgEng 2012 theme highlights.

Robert's Hello

Incoming President, Robert Kaufmann

By resolution of the Council I have been appointed to serve as President of EurAgEng for two years from the summer of 2012. While I am delighted by this appointment and am happy to accept the responsibility, I also have a great deal of respect for the duties incumbent upon me. It gives me pleasure to make my strengths, knowledge and skills available for strengthening and advancing this important and unique organisation of European agricultural engineering. I would also like to thank the Secretariat in advance for the excellent job they do. Without this support I could not do my job properly.

A brief note on myself and my background

I graduated from the Swiss Federal Institute of Technology (ETH) in Zurich with the degree of Engineer Agronomist (Ing. Agr. ETH) having specialised in crop production. My professional experience is based on consultancy in the business management field, and on research in process-engineering with a focus on livestock farming technology and agricultural building.

I currently head the Agricultural Economics and Agricultural Engineering Research Department on the Tänikon site of Agroscope (Switzerland) which employs a staff of around 40. We have five

www.agroscope.admin.ch/forschung/00239/index.html?lang=en
www.agroscope.admin.ch/forschung/05824/index.html?lang=en

Research Groups which cover research into a broad spectrum of issues. These range from socioeconomics (predictive models) and rural sociology through farm management (income monitoring) and economic efficiency calculations to agricultural engineering. The latter covers process engineering in livestock husbandry (including emissions/immissions, ethology) and agricultural building as well as tractor engineering (including exhaust gas technology) and field work technology. Work economics is an important cross-disciplinary field.

We are part of Agroscope, the national departmental research institution. It is the Government's centre of expertise for agricultural research and promotes sustainable management in the sphere of agriculture, nutrition and the environment.

We work mainly in applied research, employing scientific methods to create direct added value for commercial farmers as well as for politics and society. We are supported in our work by a close national and international network of links to the scientific community, industry and our stakeholders. I look forward to meeting you here in Valencia, next year in Hannover and, of course, in Zurich in 2014!

From the Incoming President

Robert Kaufmann

Future R&D challenges in agricultural engineering

There are good grounds for strengthening agricultural research in general and research into agricultural engineering in particular. And we are thinking here not only of publicly funded research, but also of the numerous development activities in upstream and downstream industry. According to *Future Challenges for a Sustainable European Agriculture*, the review commissioned under the auspices of ICT-Agri, the key areas are global food security, sustainable management of natural resources, energy consumption, food quality and safety, climate change, social aspects and demands.

The production of biomass to meet various requirements - food, feed, fibre, fuel - must in future be governed by important restrictions, due mainly to the scarcity of resources.

The knowledge-driven approach in accordance with the Knowledge-Based Bio-Economy (KBBE) is a pioneering approach: "The KBBE will play an important role in a global economy, where knowledge is the best way to increase productivity and competitiveness and improve our quality of life, while protecting our environment and social model."

Achieving targets with an interdisciplinary approach to research

As discussed, central to all development is the improvement of resource efficiency leading to ecological intensification. This, however, calls for the involvement of stakeholders from different scientific fields as well as the commercial farms in the sense of an inter- and trans-disciplinary approach. Research and development in the natural sciences and technology must not move in isolation, but must address issues in joint projects with social and humanistic disciplines. Whether and how something functions should not be the only important issue, but should be allied to the ultimate effect on human beings and their social life.

Such an integrated approach takes into consideration the interactions and interrelationships of economics, ecology and social effects. It ultimately allows us to make an overall assessment of technologies and production systems.

Agricultural engineering's contribution to supplying the future world population

The concluding reflections on the role of agricultural engineering research and development are based on the already quoted "Strategic Research Agenda of ICT and Robotics in Agriculture and Related Environmental Issues" (2012), for which we in our Institute were able to provide close technical support. In the narrower sense the same applies to ICT and robotics as it does to agricultural engineering and the food sector as a whole.

- Increase productivity
- Reduce waste in the food chain
- Optimise fertilizer and pesticide use
- Optimise water management
- Avoid soil compaction and erosion
- Stimulate biodiversity
- Minimize air pollution
- Increase energy efficiency
- Ensure food quality and safety
- Food traceability and information
- Reduce greenhouse gas emissions
- Increase animal welfare and health
- Optimise feed and energy input in animal production
- Less tedious and hazardous work.



Key areas of future innovation

Even if society is occasionally sceptical about the use of high-tech methods in agriculture, new technologies are of central importance in achieving these challenging goals. We need innovation and development, and we need them particularly in the following domains:

- Precision crop farming, especially variable rate applications and controlled traffic farming
- Precision livestock farming
- Automated indoor climate control, both in livestock husbandry and greenhouse production
- Automated quality control, throughout the food chain with the most important need for action in primary production
- Agricultural robots
- Farm management and information system for internal farm use, but also for communication between farms and with outside partners (customers, service providers, administration).

Good ideas have to get from the lab to the field. Progress in the implementation and use of these promising technologies at farm level requires the development of solutions in which hardware (machines, sensors, computers, etc.) and software together support manageable and profitable use by farmers. This calls for interdisciplinary research and development and collaboration between research, industry, providers and farmers in form of Public-Private Partnerships (PPP).

Networks and research programmes which support this process should be welcomed and encouraged. This is the important role of EurAgEng, both now and in the future.

Job Vacancy

**Assistant Professor, Machinery Systems Extension Specialist
University of Wisconsin-Madison**



Applicants should possess an earned PhD in Agricultural Engineering, Biological Systems Engineering, Mechanical Engineering, Agricultural Systems Management or a closely related field. They should also have research, extension and/or teaching experience related to agricultural machinery engineering and precision agricultural management technology. This faculty position carries a commitment to the three important functions of Resident Instruction, Research, and Extension/Outreach, as well as professional and university service as appropriate to faculty rank.

Vacancy listing reference: 72980

Closing date for applications: **1 September 2012**

Details from: www.ohr.wisc.edu/pvl/pv_072980.html

EurAgEng Outstanding Paper Awards 2012

Publishing high quality papers in peer-reviewed journals is a vital component in research, and EurAgEng recognised this by adopting **Biosystems Engineering** as its Official Scientific Journal in 1994. In 2008, for the first time, some of the best papers published in the journal were recognised through the EurAgEng Outstanding Paper Award which is sponsored by the IAgRE, the UK national society.

The editors and the Editorial Board of Biosystems Engineering have considered all the papers published in the journal in 2010 and 2011 in order to identify three that will be presented with EurAgEng Outstanding Paper Awards at CIGR-AgEng2012 in Valencia. The final selection will be made from the shortlist below. The winners will receive a certificate and a prize during the prize-giving.

S.L. Speetjens, J.D. Stigter, G. van Straten
Physics-based model for a water-saving greenhouse. Biosystems Engineering, Volume 105, Issue 2, February 2010, Pages 149-159

D.D. Bochtis, C.G. Sørensen
The vehicle routing problem in field logistics: Part II. Biosystems Engineering, Volume 105, Issue 2, February 2010, Pages 180-188

P.J. Sonneveld, G.L.A.M. Swinkels, J. Campen, B.A.J. van Tuijl, H.J.J. Janssen, G.P.A. Bot
Performance results of a solar greenhouse combining electrical and thermal energy production. Biosystems Engineering, Volume 106, Issue 1, May 2010, Pages 48-57

Geert Craessaerts, Wouter Saeys, Bart Missotten, Josse De Baerdemaeker
Identification of the cleaning process on combine harvesters, Part II: A fuzzy model for prediction of the sieve losses. Biosystems Engineering, Volume 106, Issue 2, June 2010, Pages 97-102

Meir Teitel
On the applicability of the Forchheimer equation in simulating flow through woven screens. Biosystems Engineering, Volume 109, Issue 2, June 2011, Pages 130-139

M.C. Butler Ellis, P.C.H. Miller
The Silsoe Spray Drift Model: A model of spray drift for the assessment of non-target exposures to pesticides. Biosystems Engineering, Volume 107, Issue 3, November 2010, Pages 169-177

A.A. Pfeifer, V.V. Murata, M.A.S. Barrozo
Modelling of soybean seed drying in concurrent sliding bed dryers: Effect of the number of stages on the seed quality and drying performance. Biosystems Engineering, Volume 107, Issue 4, December 2010, Pages 341-348

S. Hong, I. Lee, H. Hwang, I. Seo, J. Bitog, K. Kwon, J. Song, O. Moon, K. Kim, H. Ko, S. Chung
CFD modelling of livestock odour dispersion over complex terrain, part II: Dispersion modelling. Biosystems Engineering, Volume 108, Issue 3, March 2011, Pages 265-279

J. Mellmann, K.L. Iroba, T. Metzger, E. Tsotsas, C. Mészáros, I. Farkas
Moisture content and residence time distributions in mixed-flow grain dryers. Biosystems Engineering, Volume 109, Issue 4, August 2011, Pages 297-307

C.J. Coetzee, S.G. Lombard
Discrete element method modelling of a centrifugal fertiliser spreader. Biosystems Engineering, Volume 109, Issue 4, August 2011, Pages 308-325

B.H.E. Vanthoor, C. Stanghellini, E.J. van Henten, P.H.B. de Visser
A methodology for model-based greenhouse design: Part I, a greenhouse climate model for a broad range of designs and climates. Biosystems Engineering, Volume 110, Issue 4, December 2011, Pages 363-377

Why join EurAgEng?

The European Society of Agricultural Engineers exists to promote the profession of Agricultural and Biosystems Engineering and the people who serve it. Here are some of the benefits:

- reduced rates at **AgEng**, **Land.Technik-AgEng** and **CIGR** conferences and many other events
- free **CABI Agricultural Engineering Abstracts** (with many full texts) for national society members
- automatic member of **CIGR**, the International Commission of Agricultural and Biosystems Engineering
- monthly **Email Update** for job vacancies, events, research calls etc
- reduced rates to **Biosystems Engineering**, the official scientific journal of EurAgEng
- opportunities to **network** with other professionals in industry and academia around Europe
- a twice yearly **Newsletter** - a place to disseminate project news and results
- news on **EC calls and consortia**
- represent the profession at EC level
- exchange research results and technology; access to the members' database to find project partners and collaborators
- development of pan-European university curricula
- support the work of the **ENGAGE** network of research institutes
- give something back to the profession - share knowledge and expertise with younger engineers.

Contact secgen@eurageng.eu, or find us in Valencia, for more information



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