News from EurAgEng

Winter 2011/12

Franz Grimme wins the EurAgEng Award of Merit in Hannover

German entrepreneur and Managing Director of Grimme, Franz Grimme was awarded the EurAgEng Award of Merit at LAND.TECHNIK-AgEng2011. The Award is EurAgEng's most prestigious award which is given to a leading figure in the world of agricultural engineering. Franz Grimme is the fourth generation managing director of the company renowned for machinery for growing and harvesting potatoes, sugar beet and root vegetables. The prize was awarded at a special ceremony during the conference by Professor Peter Schulze Lammers, President of the European Society of Agricultural Engineers.

Also recognised during the ceremony were Dr Detlef Ehlert and Engineer Robert Honzek. They both received the Max Eyth Commemorative medal from Professor Stefan Böttinger, the President of Max Eyth Society for Agricultural Engineering (VDI-MEG), Germany, for their contributions to education and design.

The Award of Merit being held by Dipl-Ing Franz Grimme accompanied by his wife

Franz Grimme has been managing director of the Grimme company since 1980. The family-owned company was founded in 1861 and is headed by Franz Grimme now of the fourth generation. Since its beginnings 150 years ago the company has developed into a full range supplier (stone separating, bedforming and planting, cultivating, harvesting and storing) for the potato industry and notable equipment designs for sugar-beet and vegetable production.

Franz Grimme realised at an early stage the potential of globalisation in the equipment markets. He worked to grow sales activities from 15 countries in 1980 to over 100 countries now. Exports have grown to about 80% of the overall turnover. Employment has increased from 350 to more than 1,500 employees.

The company has also grown by founding a range of subsidiaries: Internorm (producing technical polyurethane parts), RICON being a sales company for conveyors and other parts, and Grimme Solutions which provides engineering support for potato processing projects. In 2003, Grimme also acquired the North American market leader in potato technology, the Spudnik Company in Idaho, USA with over 200 employees.

Franz Grimme realised early the need for soil protection, especially for root crops such as potatoes and sugar beet, and launched the first Grimme potato harvester with rubber caterpillar tracks in 1999. This soil protecting chassis was also used on the first Grimme sugar beet harvester which was included in the product range in 2003.

Franz Grimme is an entrepreneur who recognises the challenges of agricultural technology and the economic climate. Junior engineers and business economists are trained in a combined training programme and study in a nearby college. Franz has supported the whole agricultural engineering industry including, since 1992, by being a member of the board of the Division for Agricultural Technology of VDMA, the German Engineering Federation.

EurAgEng is proud to honour Franz Grimme with its Award of Merit in 2011 as a successful leader and manager of a major player in the agricultural equipment industry, extending the business from a local producer, firstly to a European player, and then embarking on the global market.

Record Attendance at LAND.TECHNIK - AgEng 2011 in Hannover, Germany

As the prelude event to Agrictechnica, the LAND.TECHNIK - AgEng 2011 conference welcomed the international community to discuss the latest results of product development and research in agricultural engineering. Under the theme ***Solutions for Intelligent and Sustainable Farming*** the conference addressed requirements for "future farming" machines including higher productivity, improved economic efficiency, lower energy needs and better integration into process chains.

The conference attracted more than 850 delegates from 26 countries. About 70 percent of participants were from industry. It is the largest number of participants to attend the Conference.

Seventy two technical lectures in four parallel sessions covered topics such as recent innovations in tractor design, including electric drives and machine management. Innovative concepts and improvement in mobile hydraulics and drive train were presented as well as new solutions for agricultural information technology and precision farming. Another topic focused on field robotics, automation and machine control. Further issues were soil protection, tillage and sowing, harvesting technology and sustainable energy.

Top-class plenary speeches from Heinrich Flegel, Member of the Supervisory Board of Daimler AG, and Markwart von Pentz, President of Agriculture & Turf Division of Deere & Company, USA, as well as the get-together dinner made the event one of the most important conferences of the international agricultural engineering community for 2011.

The Max Eyth Society for Agricultural Engineering and EurAgEng thank all participants, speakers, chairmen and the programme committee for making this conference a successful event as well as a place for a fruitful exchange of ideas and networking. The Scientific Chairman, Thorsten Lang, from Technische Universität Braunschweig, Germany and the organisers look forward to meeting you again at LAND.TECHNIK - AgEng 2013 in Hannover on 8th and 9th November 2013.

Conference proceedings (VDI-Bericht Nr. 2124) can be ordered at a price of €123 incl VAT.
Contact: VDI Verlag GmbH, Wolfgang Bittner, wbittner@vdi-nachrichten.com

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CEMAGREF becomes IRSTEA and opens a national debate on *Research and the Environment*

As well as celebrating its 30th anniversary, CEMAGREF has started a national debate in France on the role of research in alleviating environmental problems. Also to reaffirm its role in this, CEMAGREF has become **IRSTEA**, the **National Research Institute of Science and Technology for Environment and Agriculture**.

We know what the problems are: to feed 9 billion people in 2050, to guarantee access to clean water for all, to reduce the impact of agriculture on the environment, to respond to the challenge of climate change, to preserve biodiversity, to accompany sustainable development of land in the face of growing urbanisation, to better manage hazards and their risks, to modify our behaviour, to adapt our political systems, etc, etc. It has never been more necessary to understand and face these great challenges, and the environmental research which allows these questions to be quantified, will enable innovative ideas and concrete solutions to be found.

The public is becoming more and more aware of threats to the environment and can learn more about the role that environmental research, vital for our future, can play in responding to these threats. The public needs information and through the ongoing debate can understand the importance of French environmental research.

Open to all, the debate on ***Research and the Environment*** will unite scientists, students, commercial organisations and society in reflecting on these environmental questions.

New identity of the Institute

Launching this debate provides the opportunity to announce the new identity of the Institute.

Thirty years after its creation in 1981, CEMAGREF has been renamed IRSTEA to reaffirm its position at the heart of environmental research in France on the questions of water, management of environmental risks, green technologies and sustainable land management. Over the last 30 years the Institute has developed a multi-disciplinary approach to these topics which today gives it its strength and originality. However for more than 15 years it has suffered from a lack of public awareness and a gap between its mission and actual research topics. With its new identity, its strengths in environmental sciences on an European and international level, its research objectives, development, training and public policy support, IRSTEA will raise its profile in the political agri-environmental arena.

Read more about IRSTEA at www.irstea.fr and follow the debate on twitter.com/cemagref or http://forum-recherche-environnement.cemagref.fr

Reflections on Agritechnica
David Tinker - Secretary General

A big advantage of attending LandTechnik-AgEng is the chance to visit the Agritechnica show, with a discount Pre-view ticket for the Sunday and Monday. This year Agritechnica had about 20% more exhibitors expecting that the stimulation among the food, feed, fibre and fuel sectors will increase investment in machinery. The Innovations receiving awards are published before Agritechnica so it's possible to check what's new and judged innovative.

This time there were two Gold Awards and 39 Silver, from about 300 submitted. ***Intelligent Control*** was a theme of practically all the prize winners, often with ISOBUS features. The Gold Awards went to the "GuideConnect" from Fendt, allowing a driverless tractor to follow a lead tractor with an operator on-board, and the "NON-STOP" round baler-wrapper combination from Krone that, among other features, allows the baler to control the tractor's speed. Of the Silver awards it was also difficult to spot an Innovation that is without active control, from the smoother John Deere operator's seat, the safer trailer braking from Krone and Amazone's user-friendly, ecologically relevant external sprayer-boom washing-system. Even a trailer chassis from Smart Chassis, was mechatronic! However New Holland has used mechanical design on their central knife drive for extra simplicity, lower crop disturbance and wider headers on combines; but there is still auto-control to stop the drive during turns (to reduce knife wear). The Gold and Silver innovations can be viewed at www.agritechnica.com/innovations.html

Not all the machinery or the operators were big!

The more logical layout of the show meant that the *Smart Farming* section included the high-tech electronics such as GPS/RTK and FMIS (Farm Management Information Systems) exhibitors and also the popular seminar sessions on topics such as Controlled Traffic Farming.

Also in *Smart Farming* was AEF (Agricultural Industry Electronics Foundation). AEF focuses the independent international resources and knowledge of its agricultural equipment manufacturing and trade association members towards enhancing the use of electronics in farming, particularly, but not only, towards ISOBUS implementation and control system safety. Founded by nine organisations in 2008 it now has over 120 members and welcomes new members. Two papers at Land.Technik-AgEng, given by Norbert Schlingmann from Claas and EurAgEng member Jaap van Bergeijk from AGCO, discussed the AEF database and compliance testing of this important aspect for the future development of better, faster and more productive farm equipment. See www.aef-online.org

An Innovation from times past

Practically all agricultural engineers will have had at least a quick trip through the tractors to see what's new. As always, I will be looking forward to reading articles and papers by EurAgEng founder-member Prof Karl Renius for a more detailed breakdown of the current trends and developments in tractor transmissions. It is appropriate to say here that John Deere's 7280R was chosen by the editors of 20 machinery magazines as *Tractor of the Year* and represents the state-of-the-art. What will be state-of-the art at Agritechnica in 2013? Will the reforms for the 2014-2020 CAP be decided upon? How many currencies will exist in the Eurozone? We will have to wait and see but be certain that we will meet again at Land.Technic-AgEng2013 for a taste of the engineering behind the innovations at Agritechnica.

John Deere 7280R awarded Tractor of the Year 2012

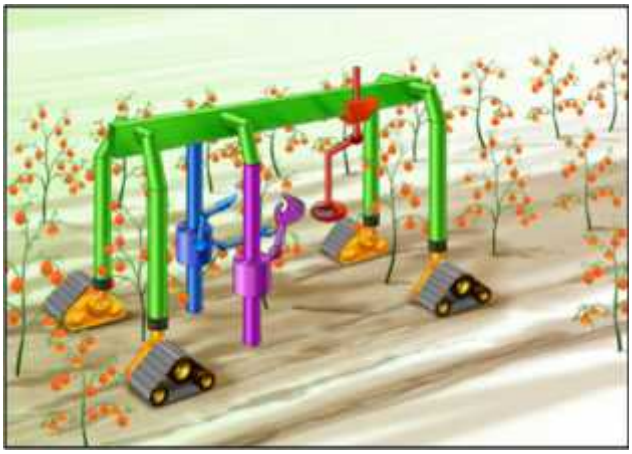
EU funded research - collated by David Tinker

Agricultural Engineering and Technologies, AET, is a group that lobbies to have agricultural engineering topics included in research calls, particularly those of the FP7 research programme. AET is chaired by Prof Peter Pickel of John Deere, and himself the leader of an FP7 project 2ndVegOil (http://2ndvegoil.eu). Although the discussions and talks included very many acronyms that have to be slowly absorbed there were two talks that I thought were technically interesting and would interest EurAgEng members. In July 2010 there was an FP7 research call on *Automation and robotics for sustainable crop and forestry management*. You may remember, or even have been involved in one of the 19 proposals that were submitted. Two proposals were successfully funded, have started now and gave presentations at the AET workshop.

CROPS, Clever Robots for Crops, will develop scientific know-how for a highly configurable, modular and clever carrier platform that includes modular parallel manipulators and intelligent tools (sensors, algorithms, sprayers, grippers) that can be easily installed onto the carrier and are capable of adapting to new tasks and conditions. Several technological demonstrators will be developed for high value crops like greenhouse vegetables, fruits in orchards, and grapes for premium wines.

The CROPS robotic platform will be capable of site-specific spraying (targets spray only towards foliage and selective targets) and selective harvesting of fruit (detects the fruit, determines its ripeness, moves towards the fruit, grasps it and softly detaches it).

Artist's impressions of two CROPS harvesting robots

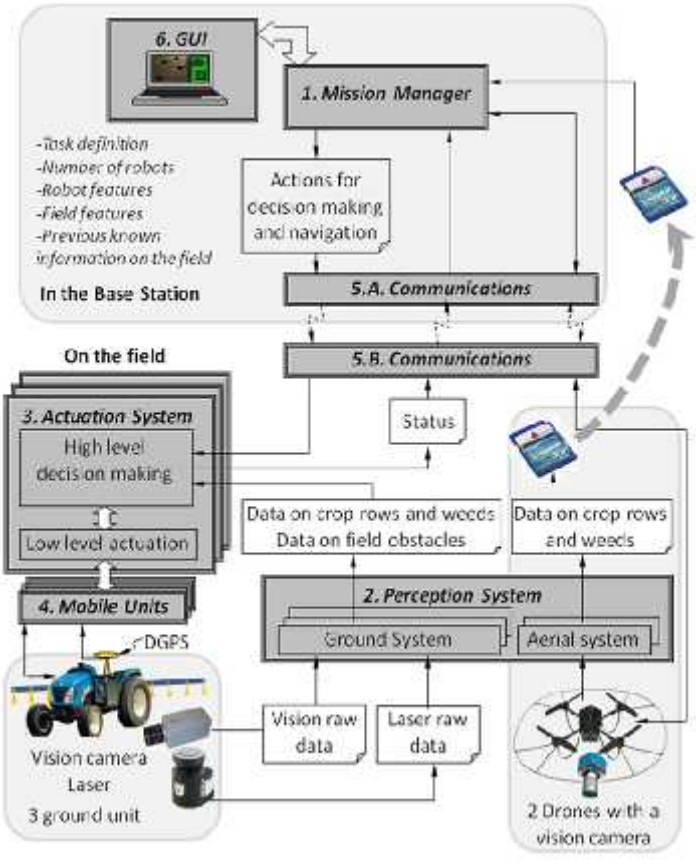


Another objective of CROPS is to develop techniques for reliable detection and classification of obstacles and other objects to enable successful autonomous navigation and operation in plantations and forests. The agricultural and forestry applications share many research areas, primarily regarding sensing and learning capabilities.

Coordinated by Wageningen UR from The Netherlands the project includes nine universities and research organisations with four commercial companies participating.

At the CROPS website www.crops-robots.eu there is plenty more information for dissemination including project workshop presentations on Sensing and Mechanical Design, and Horticultural Engineering.

The second project **RHEA**, Robot Fleets for Highly Effective Agriculture and Forestry Management, is devoted to the application of Precision Agriculture techniques. RHEA is focused on the design, development, and testing of a new generation of automatic and robotic systems for both chemical and physical effective weed management in agriculture, covering narrow and wide row crops and woody perennials. Coordinated by the Spanish Center for Automation and Robotices (UPM-CSIC) the consortium of 15 organisations has a mix of commercial and research organisations with expertise in robotics, agronomy, perception and action, manufacture of agricultural equipment and use by operators.



RHEA System Breakdown

RHEA RobotFleet

Two main scenarios are to be considered for robotic pest management. In annual crops, aerial units will periodically inspect fields for problems and this data will enable site-specific treatments with computer programs designed for the decision-making process. Weed control with chemical, mechanical or thermal weeding will depend on efficacy, profitability and environmental effects.

Routing, for both individual, autonomous, ground units and of the fleet, will be planned and coordinated for maximum effective weed control, minimal crop damage and optimal cost/benefit relationships. Aerial units will continue to monitor the fleet.

The second scenario will focus on insect and disease control in woody crops (agricultural or forestry) with chemical application based on different types of air-blast sprayers controlled by sensors.

To achieve these goals, numerous innovations will be required: from vision systems, actuation systems, communication systems and location as well as user interfaces.

Equipment will include aerial units based on improved quadrotors with monitoring cameras. Weed maps will be generated and provided to a fleet of autonomous medium-size sprayers. These vehicles, with GPS systems and innovative chemical injection systems will enable variable rate spatially controlled application of appropriate herbicides. In maize, a wide row-crop, aerial scouting will provide basic information on weed patches but actual weed detection will be conducted with cameras on the vehicle. This information will be provided online to a mixed, mechanical-thermal actuation system including non-selective weed control between rows and more selective intra-row control.

In olive and forestry crops two types of applicators will be tried. In olives, RHEA will use a lateral "Octopus Sprayer" with control of diffuser inclination and airflow by sensors. In forestry applications the plan is to use the "Cannon Boom" type of applicator with a single diffuser and a series of nozzles using a telescopic vertical pipe for height control and variable inclination.

AGREE, Agriculture and Energy Efficiency, is a networking type project which has just been awarded and includes several partners with links to EurAgEng and ENGAGE. Energy efficiency in agriculture, except for use in greenhouses, has received little attention so far but it is considerable, especially when indirect energy is considered. The objective of AGREE is to show the potentials for short term and long term energy efficiency gains. AGREE has brought in partners covering south-eastern, south-western, north-eastern and north-western agricultural production systems. Evidence at country level will be brought together at the transnational level to identify an agenda for transnational collaboration to understand energy use efficiency. AGREE will link up with ENGAGE (and EurAgEng) to help implement the results and it also has links with the Collaborative Working Group on Agriculture and Energy and into SCAR.

Expect to see more information on AGREE via EurAgEng publications, the website and at AgEng conferences over the next few years as the project progresses. See http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_LANG=EN&PJ_RCN=12258280&pid=4&q=7696F5B889BB15C113B3512D7F576954&type=sim

The Future

Although it is always useful to understand the acronyms, inter-relationships and complexities of the EC funded research and innovation programmes, it is more important to be aware that such programmes exist and to network with other research and commercial organisations so that when a suitable call comes along there is a potential consortium that has ideas for a project. It is almost certain that someone will have an understanding of the general framework and we at EurAgEng do try to let members know about research calls promptly when they are announced. At the AET workshop we were told that a second call for the ERA-Net ICT-Agri (Google ICT-Agri) will be published early in 2012. We'll have details about the call in the EurAgEng Email Update when we hear. The first call was very popular with 44 proposals leading to seven funded projects.

The EurAgEng Email Update, Newsletter, AgEng Conferences and the EurAgEng website will have items of project news, calls for proposals whether in ICT-Agri ERA-NET, FP7 (and FP8 which is to be called "Horizon 2020") and events such as AET Workshops, partners brokerage and conferences and seminars.

How to join EurAgEng

- **En-bloc membership**
  A National Society and its members can become part of EurAgEng for €250 plus €15 per member (€7 for members under 35 years of age) per year. See www.eurageng.eu/natsocs. Individuals should try to join via a National Society.
- **Affiliate membership**
  Organisations may become affiliate members of EurAgEng and enjoy the same benefits as en-bloc members. The fee depends on the size of the organisation but can be as little as €150 per year.

For more information on membership visit www.eurageng.eu/membership or contact the Secretary General secgen@eurageng.eu

The VI Iberian Congress of Agricultural Engineering was held at the University of Evora, Portugal on 5-7 September 2011. This congress, organised by the Department of Agricultural Engineering, School of Science and Technology, University of Évora in collaboration with the Spanish Society of Agricultural Engineering and Agricultural Engineering Section of the Society for Agricultural Sciences in Portugal, brought together some 270 researchers, technicians and students from different countries who participated in several sessions and technical visits. Participants were clearly satisfied, which resulted in a significant contribution to the development of the topics in question. Generally it was concluded that:

- The organising committee welcomed the participation of so many colleagues from different educational and research institutions, which contributed to dynamic technical sessions, showing the interest and relevance of the topics discussed;
- The thematic areas of the VI Iberian Congress of Agricultural Engineering covered the technologies associated with the agri-food sector to enable improved productivity and competitiveness of this sector in a sustainable and environmentally friendly way, contributing to the development of rural areas and for the welfare of the general population;
- The subjects chosen were presented and discussed in three forms: lectures given by internationally recognized experts, oral presentations and poster sessions, integrated in the technical sessions of the nine thematic areas.

More specifically, the work presented during the congress has led to the following conclusions:

1. Construction

- The use of three-dimensional analysis techniques proved to be of great interest in drawing and design of rural buildings;
- Experimental tests are recommended to study the development of new building materials and their durability when applied in farming systems.

2. Energy

- The viability of using renewable energy comes from correct design;
- The correct use of power must take into account two aspects: the evaluation and optimisation of energy resource consumption;
- The possibility of using various sources of renewable energy and waste in rural areas was demonstrated ;
- There is a wide range of crops that can be used in biofuel production, some having more potential than others, according to the geographic region and the technology used in its processing and application.

3. Mechanisation

- The work presented in this area combined mechanisation with agricultural production and focussed on ways to improve the knowledge applied to Conservation Agriculture, forestry and different cultivation techniques;
- Precision farming techniques were presented, such as prototyping and computational fluid dynamics (CFD), which can contribute to the improvement of inputs use efficiency;
- Issues related to hygiene and safety in pruning and harvesting of fruits were also studied.

4. Projects, Environment and Territory

- Work presented related to public participation in rural development and land management applied to various conditions of European and Latin-American countries;
- The necessity for further enhancement of the landscape criteria in agricultural infrastructure and transport was made clear, taking into account the information provided by users and agents involved;
- Particular importance was given to the emissions from livestock farms and processing of waste from various sources.

5. Soil and Water

- The ability of models to represent the growth of irrigated crops was demonstrated and can be used in water management in real conditions. Nevertheless these models should be calibrated and validated according to the characteristics of each region;
- The automatic systems introduced in irrigation systems give satisfactory results allowing the maintenance of soil-moisture near field capacity.

6. Greenhouse Technology

- The importance of reducing production costs, increasing technology use and crop productivity were highlighted as a way to face the current crisis;
- The aspects of the structure and roofing materials continue to be addressed in greenhouse technology;
- When designing natural ventilation systems in greenhouses particular attention should be paid to the presence of objects or other buildings nearby.

7. Post-Harvest Technology

- New mathematical methods based on robust models were presented with application in studies of post-harvest technology, particularly in simulations and control systems that allow the application of robots handling fruit;
- The physical properties of agro-food products determined by objective instrumental techniques and the use of statistical tools enable a rapid classification of fluids and grains,
- The use of near-infra-red spectrometry (NIRS) is also an innovative application for post-harvest inspection.

8. Animal Production Technology

- Since productivity and competitiveness of animal production systems is determined by four main aspects: animal welfare, environmental protection, food security and health security; then animal production engineering should be developed and implemented carefully.

9. Emerging Technologies

- Monitoring, efficiency and optimisation of resources that have impacts on bio-systems are the key words for Emerging Technologies;
- The use of spectral images in fruits and vegetables has a lot of interest because it is a relatively inexpensive technology. However the use and processing of images needs to improve.

Final Comment

The European Union continues to provide substantial amounts for research projects. However, agricultural engineering in general, and for the Mediterranean countries in particular, has difficulty in accessing these funds. It is necessary to provide high quality projects in integrated teams who can lobby and participate for setting the priorities.

Fátima Baptista, President of the Organising Committee

Biosystems Engineering - Editor's Report

Steve Parkin

Biosystems Engineering is the official journal of EurAgEng. Submissions have grown 5% annually over the last three years with published papers being about 35% of the total submitted. We are currently engaged in processing two special issues. Downloads of papers, the preferred method of measuring readership for web-based journals, are strong and above 230,000. This has expanded greatly in recent years.

Our journal impact factor is currently 1.24, its highest to date. However it was originally calculated as being stagnant. This was a mistake which was identified by one of our sharp-eyed authors. It was eventually corrected in September by Thompson ISI (who operate the impact factor scheme).

In January there will be an editorial in the journal covering the issue of plagiarism. This is because we have had a case of plagiarism in a published review paper. This paper will be withdrawn (ie retracted). We have further improved our plagiarism checking procedures and informed those concerned. It should be noted that the paper was originally checked for plagiarism by the submitting university, but they used a basic checker.

To date the editorship has been with Bill Day and Steve Parkin. The journal has recently taken on an additional editor, Dvoralai Wulfsohn, who is acting as an Associate Editor.

Don't forget there is a link on the EurAgEng home page to the current contents (and abstracts) for Biosystems Engineering and that EurAgEng members are able to obtain a personal hardcopy of Biosystems Engineering or an on-line subscription to the journal via EurAgEng. Prices for 2012 are £247 + local vat for a hard copy and £75 + local vat for an on-line subscription. Contact secgen@eurageng.eu to apply.

Sponsored Events

21-24 February 2012
40th Actual Tasks on Agricultural Engineering Symposium
Grand Hotel Adriatic, Opatija, Croatia
http://atae.agr.hr/

29-31 May 2012
4th International Conference on Monitoring, Simulation, Prevention and Remediation of Dense and Debris Flow
Dubrovnik, Croatia
www.wessex.ac.uk

30 May-1 June 2012
3rd International Conference on Flood Recovery, Innovation and Response
Dubrovnik, Croatia
www.wessex.ac.uk

10-13 June 2012
International Symposium on Emissions of Gas and Dust from Livestock
Rennes, France
https://colloque.inra.fr/emili2012

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

6-10 July 2014
AgEng2014 Energy Shortage and Climate Change - a Challenge for Agricultural Engineers
Zurich, Switzerland

26-29 June 2016
4th CIGR International -AgEng Conference 2016 - Robotics, Environment and Food Safety
Aarhus, Denmark

Other Events

15-17 May 2012
8th International Soil Science Congress (ISSC)
Izmir, Turkey
www.soilcongress.ege.edu.tr

28 May-02 June 2012
5th International Conference on Water, Climate and Environment BALWOIS 2012
Ohrid, Macedonia
www.balwois.com/2012/

15-18 July 2012
11th International Conference on Precision Agriculture
Indianapolis, USA
http://ispag.org/icpa

29 July- 1 August 2012
2012 Asabe Annual International Meeting
Dallas, Texas
www.asabe.org/meetings/index.html

3-6 September 2012
III International Conference 'Safety Health Welfare in Agriculture Agro-food and Forestry Systems'
Ragusa, Italy
www.ragusashwa.it/2012/

24-28 September 2012
19th ISTRO Conference IV SUCS Meeting
Montevideo Uruguay
www.congresos-rohr.com/istro2012/

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

Agriculture & Engineering for a Healthier Life
CIGR-AgEng2012
8-12 July, Valencia, Spain

The next conference in the AgEng series will be a joint EurAgEng and CIGR International Conference on Agricultural Engineering in 2012. In addition, there will be a Special Parallel Conference on mechanisation and post-harvest technology in developing countries organized by UNIDO and FAO.

The Conference will cover emerging research and new engineering solutions for food production and rural activities, as a means to enhance human wellbeing and promote social benefits. New concerns include methods of agricultural, livestock and forestry production, and the preservation of 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 intended for staff and students from academia, representatives from industry, producers, manufacturers and service providers from all over the world for discussion about novel approaches to integrate agriculture and engineering for enhancing the quality and expectancy of life.

For more details, visit **www.ageng2012.org**

The European Network for Engineering and Systems in the Rural Sector
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** (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

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