



International Commission of Agricultural and Biosystems Engineering

CIGR

*Newsletter
Quarterly*

**Newsletter No. 105
December 2015**

*Since 1930
85 Years of CIGR*

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Commission Internationale du Génie Rural (CIGR)

CIGR Website: <http://www.cigr.org/>

1. CIGR NEWS

Message from the President

The end of the calendar year and the beginning of a new one has made everyone reflect on the successes and setbacks of the past 365 days... They also offer a chance to formulate the plans for the future. Such thoughts visit the CIGR President and most probably many members of our organization.

The comparison of the CIGR's mission (see: Mission Statement on the web page: www.cigr.org) with the

numerous conferences and scientific publications, as well as with other achievements of the members of our organization constitutes a good basis for satisfaction with the results of our work. Agricultural and biosystems engineers have successfully addressed the food and environmental problems in many places worldwide. In almost every continent, one can find a number of examples of the practical applications of our engineering knowledge.

Simultaneously, we continued the research which constitutes the theoretical basis of the practical applications of engineering knowledge. An extremely significant forum for popularization of the research findings is the CIGR-e-Journal edited by Professor Lanfang Zhang, his colleagues, and a team of reviewers. I would like to thank all the authors, reviewers, and the editorial committee of the CIGR-e-Journal for their selfless and professional work for our organization. I am also grateful to the members of the Working Groups whose reports can be found on the website: www.cigr.org, containing information which is both interesting and important for agricultural engineering.

All CIGR Technical Sections, either independently or in cooperation, have organized scientific conferences in many places worldwide. The proceedings from these conferences prove how well our engineering organization keeps itself updated in meeting the increasingly complex challenges of today. The opportunities to present the new technical and technological solutions shall be provided during the CIGR conference (Aarhus, Denmark) in June 2016, as well as during the conference on Engineering and Technology Innovation for Global Food Security, which will be held in Stellenbosch, South Africa (24-27 October 2016), in ASABE with our (CIGR) participation. The main goals for the Agricultural and Biosystems Engineering Global Initiative formulated at the 2013 ASABE Annual Meeting in Kansas City (USA), are namely: (1) improve food productivity, (2) reduce food losses and waste, (3) enhance energy conservation and efficiency, (4) develop adaptable renewable energy systems, (5) improve water availability, conservation, and efficient use, (6) provide clean water for multiple use (human consumption, agriculture, recreation, ecosystem services, biodiversity etc.) will be discussed. We eagerly anticipate that numerous agricultural and biosystems engineers from various countries will participate in these conferences. We have been taking advantage of the conferences, and discussing the methods of



Prof. Tadeusz Juliszewski

promotion of agricultural and biosystems engineering. We need, however, to strengthen these so that our organization will continue to be relevant as one of the dynamic bodies pushing for real and positive changes in all areas of society. My best wishes for a prosperous New Year to all agricultural and biosystems engineers who are members of national and regional organizations, and may all of us realize our fondest hopes and dreams in 2016!

*Prof. Tadeusz Juliszewski
President of CIGR*

Message and announcements from the Secretary General

Dear Colleagues,

The CIGR established by a small group of European agricultural engineering scientists from Belgium, France, Germany, the Netherlands, Spain, Switzerland, and the UK. Its Constitution was declared effective on 5 August 1930 at the University of Liège in Belgium. Thus, the CIGR's activities were then conducted mainly in Europe. At present, CIGR has 32 regional, national and individual members including 96 countries participated in its activity. The main topics of CIGR have focused on upland crop and dairy production. In this message upland crop field means the field except paddy field.

The land surface of the Asian monsoon region is only 14% of that of the entire earth. This region is home to 4 billion people which is 54% of the total world population of 7.3 billion. Statistics also shows that the earth has a total arable land of 1.4 billion ha, only 0.1 billion ha of it are paddy fields. Almost all of those paddy fields are in the Asian monsoon region. Thus, the rice planted here contributes much to sustainable food sufficiency and can support many more people in the region, compared to that of wheat, maize and other crops.

In Japan, a country whose high economic growth started in 1960s, the labor force of rural area moved to secondary industries and it resulted to increased incomes and labor shortages in the said areas which led to the mechanization of Japanese Agriculture. Each Japanese paddy field was subdivided into 0.3 ha and enclosed with levees for easy operation and avoiding the risk of bad harvesting. The farm machinery for rice cultivation is completely different from those used for other crops in upland fields. For example, the small tractors, rice transplanters and harvesters of japonica type rice were required. The development of 15-30 PS water resistant tractors with rotary tillers, transplanters using young or plug seedling and that of combines equipped with Japanese traditional head-feeding threshers realized the mechanization of these tasks.

With a rapid economic growth in Southeast Asian countries, the 21st century will be the period of agricultural



Prof. Mikio Umeda

mechanization in these countries. However climate, soil conditions and rice varieties like indica type found in the region are different from those in East Asia. The development of original farm machinery to meet regional needs are required. I believed that CIGR should pay more attention to the farm mechanization for rice cultivating in addition to the usual topics. For this purpose, the role of CIGR and AAE (Asian Association for Agricultural Engineering) become even more crucial. I look forward to joining CIGR activities, and the

many researchers of non-member countries in Southeast Asia. Fortunately, everyone can now read Newsletters from the CIGR Website. Such success will eventually lead to a wider involvement and participation of more countries in the CIGR's activities.

Best regards

Prof. Mikio Umeda
Secretary General of CIGR

CIGR World Congresses and International Conferences, 2016–2020

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

Our 4th international conference on Agricultural and Biosystems Engineering with the subtitle: Automation, Environment and Food Safety will be held in Aarhus, Denmark on 26 to 29 June 2016.



At the opening session, keynote speakers on Automation, Biorefinery and Energy Production, and challenges in Food Supply and Food Safety were invited. We have a huge responsibility as engineers to develop, document and implement technical solutions that will support feeding of a growing population, ensure food and feed quality, meet the energy demands, protect the environment and make our World sustainable. This conference is a unique opportunity for engineers around the World to share knowledge, debate, and advance the interests of networking which will be brought to a new dimension introducing matchmaking between scientists and companies with the opportunity to form strong alliances and consortia for project applications.

The Conference is a joint event of CIGR (International Commission of Agricultural and Biosystems Engineering) and EurAgEng (European Society of Agricultural Engineering) and co-sponsored by NJF (Nordic Association of Agricultural Scientists) and Aarhus University. Besides an excellent scientific program formed by the participants, Aarhus University will offer a well-organized conference with plenty of room for technical discussions and social interactions. All coffee breaks, lunches and the conference dinner will be provided in a huge tent also accommodating posters and

exhibitions. Participants will be exposed to Danish music and singing during social events as visiting The Old Town, the Opening Ceremony, and the conference dinner. Exchange of knowledge and networking is given the highest priorities and the venue is ideal for these. The participants could extend their stay to attend a PhD-course or just participating in the social and technical tours.

Scientific topics and call for papers

The conference will be organized into 7 main topics, each divided into a number of sub-sessions. There are also several parallel conferences and workshops. The main topics are as follows:

- Land, soil and water engineering
- Structures, animal production and environmental technologies
- Plant production technologies
- Energy, biomass and biological residues
- Systems management
- Post-harvest technologies
- Information technologies

Parallel events:

- ERABEE – education session
- Biosystems Engineering Journal – how to publish
- Symposium: CFD application in agriculture
- Image Analysis for Agricultural Products and Processes
- AIIA project meeting – Innovation in safety and health

The conference will open for abstracts in December 2015. We encourage you to submit abstracts within the broad field of Agricultural and Biosystems Engineering. As part of the

submission, contributors should select topic and sub-session. The organizers suggest that interested parties select a primary and secondary choice of sub-session which will make it easier for the scientific committee to construct well balanced scientific sessions. Abstracts should be well written and informative and include keywords describing the topic. Presentations could be done orally or in the form of posters. The scientific committee will send the abstracts to reviewers and based on the feedback organise oral and poster sessions. Notification of acceptance for oral or poster presentation (or rejection) will be given by April 15 2016. Each sub-session will have specific time slots for posters where they should be manned. All presenters will be offered the opportunity to write a full paper. Abstracts and full papers will be available at a USB-pen upon registration.

Matchmaking

The conference is a unique opportunity to network with research and business partners working with agricultural and

biosystems engineering. As a part of the official program, the organizing committee offers the possibility to participate in structured matchmaking events. The benefits could include: Finding consortia members for international projects; Sharing research results with new potential business partners; and Performing networking on a global scale.

Participation in Matchmaking is free of charge and registration will open January 2016.

Important dates

1 Dec. 2015: Abstract submission opens

1 Jan. 2016: On-line registration opens

15 Feb. 2016: Abstract submission deadline

15 Apr. 2016: Notification of oral and paper acceptance

30 Apr. 2016: Early bird registration deadline

15 May 2016: Full paper submission deadline

Program at a glance for June 2016

Date	Morning	Lunch	Afternoon	Evening
Sat. 25	CIGR presidential and council meetings			
Sun. 26	CIGR section meetings EurAgEng Council		Working group meetings BE Editorial Board	Registration ENGAGE network
Mon. 27	Registration Opening ceremony and keynote speakers at "Musikhuset"		Oral and poster sessions, exhibitions	Welcome reception at the Town Hall of Aarhus
Tue. 28	Oral and poster sessions, exhibitions	EurAgEng Open meet	Oral and poster sessions, exhibitions	Awards and CIGR general assembly
Wed. 29	Oral and poster sessions, exhibitions		Oral and poster sessions, exhibitions	Closing ceremony
Thu. 30	Technical tours			



Venue: Aarhus University

Aarhus University will host the conference. It is one of the most rapidly advancing institutions ranked among the top 100 universities worldwide and agricultural research at AU is no. 9 on the U.S. News Best Global Universities rankings. The university has more than 44,000 students and 11,000 employees. Aarhus University is located in the city of Aarhus with almost 300,000 inhabitants. The culture is lively and young mainly due to the city's large student population. Aarhus is an old city but is still young at heart! The city was founded in the Viking era as an open trading station at the mouth of the river. Today the café environment along the river

is one of the most popular gathering places, and acts as a magnet for the city's residents and guests.

Accommodation

A sufficient number of hotel rooms are pre-reserved for conference participants. Special rates may be booked through our website. Our partner Kongres Kompagniet has made preliminary hotel reservations in different categories in the city. Preference could be stated on the registration form. In order to obtain the stated room prices, reservations must be made through Kongres Kompagniet. The conference hotels are booked on a first come, first served basis.

Registration

All registration is handled online at our webpage. KongresKompagniet handles all conference registrations, hotel reservations and correspondence of these. Registration includes a USB-pen with all abstracts and papers, coffee and lunch break during the registered dates and access to the

conference. Reception at the Town Hall is free but interested parties have to sign up for it. The conference dinner is limited to 800 attendees.

Registration fees in Euro	Before April 30	After May 1	Desk rate
Members of CIGR, AgEng or NJF	525	600	670
Non members	575	650	670
Companions	120	120	120
Students	310	360	410
One day admn			320
Low and middle income countries	420	470	470
Old Town of Aarhus, incl. dinner	40	40	NA
ARoS voucher	0	0	0
Reception at the Town Hall	Free	Free	NA
Conference dinner	40	40	60

Additional information

Please see our website where more information can be found about the conference and scientific program, parallel conferences, PhD-courses, sponsors and exhibitions, technical and social tours and much more:

<http://conferences.au.dk/cigr-2016/>

For inquiries, you may send an email to the following heads of the Committee:



President of the conference:
Prof. Morten Dam Rasmussen
at Aarhus University
Email: mdr@eng.au.dk

Chair of the scientific committee:
Dr. Claus Grøn Sørensen at Aarhus University
Email: claus.soerensen@eng.au.dk

The XIX CIGR World Congress 22-26 April 2018, Antalya, Turkey

During the CIGR General Assembly which was held in Valencia, Spain on 9 July 2012, Turkey was approved to host the XIX CIGR World Congress.

The Congress will be held on 22-26 April, 2018 in Antalya, Turkey.

The Organizing Committee is already preparing for the conduct of the said event.

For queries, you may send an email to Prof. Can Ertekin of Akdeniz University in this email address ertekin@akdeniz.edu.tr.

The 5th CIGR International Conference 2020

**Integrating Agriculture and Society through
Engineering
14-17 June 2020, Quebec, Canada**

During the CIGR General Assembly in Beijing, China on 17 September 2014, Quebec was approved to host the 5th CIGR International Conference.

The Conference will be held on 14-17 June, 2020 in Quebec, Canada.

Program overview

14 June (Sun): Registration and welcome reception

15 June (Mon): Opening ceremony, Technical sessions and Cruise on the St.-Lawrence River

16 June (Tue): Plenary session, Technical sessions and CIGR Awards Ceremony

17 June (Wed): Technical sessions and closing ceremony

Congress venue: The Quebec Convention Centre

For queries, you may send an email to the Organizer and/or Local Committee Chair at the following email addresses: stephane.godbout@irda.qc.ca

2. CIGR SPONSORED AND CO-SPONSORED ACTIVITIES

Report on Sixth International Conference on Energy Efficiency and Agricultural Engineering 11-12 November 2015, Ruse, Bulgaria

The 6th International Conference on Energy Efficiency and Agricultural Engineering (EE&AE 2015) was held on 11-12 November 2015 at “Angel Kanchev” University of Ruse in Ruse, Bulgaria. It was organized by the Bulgarian National Society of Agricultural Engineers “Engineering and Research for Agriculture” (ERA) with Section IV of CIGR, EurAgEng (Special Interest Group 23), Federation of the Scientific and Technical Unions – Ruse, and “Angel Kanchev” University of Ruse as co-sponsors.

The main objective of the Conference was to promote exchange of research results, scientific ideas and their practical implementation concerning Energy Efficiency and Renewable Energy Sources in Agriculture. More important is the establishment of professional contacts between researchers from various countries for joint participation in different international educational and scientific projects. This Conference was special, because it coincided with the celebration of the 70th anniversary of “Angel Kanchev” University of Ruse.

A total of 120 participants from 14 countries, Bulgaria, Romania, Turkey, Russia, Poland, Slovakia, United Kingdom, France, Czech, Hungary, Nigeria, Serbia, Ukraine and Japan, attended the Conference. It consisted of a Plenary Session and three topic sessions covering the subject-areas of Energy Efficiency, Agricultural Machinery and Ecology.

At the Opening Session Prof. Dr. Nicolay Mihailov of the organizing committee delivered his speech emphasizing the importance of the Event and its long tradition. Prof. DSc. Histro Beloev, the president of the organizing committee and the Rector of “Angel Kanchev” University of Ruse delivered the welcome address. Prof. Dr. Mikio Umeda, Secretary General of CIGR also greeted the participants and introduced the history and role of CIGR.

At the plenary session Prof. Ion Visa at Transilvania University of Brasov from Romania presented “Sustainable Rural Communities – Steps and Sustainability Scenarios”. Prof. Stanislav P. Rudobashta at Russian State Agrarian University gave “Drying of Dispersed Materials: Kinetic

Calculation of the Process, Quality of Dried Products, Energy Saving”. Finally Prof. Valentin Nedeff at “Vasile Alecsandri” University of Bacau from Romania delivered “Studies and Research on Phragmites Australis’ (Common Reed) Absorption Capacity of Heavy Metals from the Soil” respectively.

In three oral topic sessions, 45, 28 and 27 papers were respectively discussed in Section 1 “Energy Efficiency”, Section 2 “Agricultural Machinery” and Section 3 “Ecology and Agriculture”.

Participants were given printed copies of the Proceedings consisting in Volumes of 829 pages, containing 104 papers. At the celebration of the 70th anniversary of “Angel Kanchev” University of Ruse, 17 distinguished guests delivered congratulatory address. Prof. M. Umeda, Secretary General of CIGR delivered the seventh congratulatory address as the representative of CIGR.

Prof. Nicolay Mihailov,
The organizing committee of EE&AE
Prof. Mikio Umeda, Secretary General of CIGR



Opening Ceremony of EE&AE, at “Angel Kanchev” University of Ruse on 11 November 2015



Prof M. Umeda, Secretary General of CIGR, delivered the congratulatory address as the representative of CIGR (left) at 70th Anniversary of “Angela Kanchev” University of Ruse on 12 November 2015 and after the ceremony we enjoyed the entertainment (right)



Report on Ninth CIGR Section VI International Technical Symposium 16-20 November 2015, Auckland, New Zealand The 9th CIGR Section VI

International Technical Symposium “Creating Value from Bioresources through Novel Technologies” was held on 16-20 November 2015, in Auckland, New Zealand. A total of 125 abstracts were received from Australia, Brazil, China, Georgia, Germany, India, Iran, Japan, New Zealand, Nigeria, Korea, Russia, South Africa, Taiwan, Thailand, USA.

Dr. Dongxiao SUN-WATERHOUSE was the Symposium Convenor and Co-Chair of the Local Organising Committee. Emeritus Prof. Errol HEWETT was the Co-Chair of Local Organising Committee. Prof. Da-Wen SUN was the International Conference Chair. Dr. Amauri ROSENTHAL, Prof. Umezuruike Linus OPARA, Prof. Shujun LI and Prof. Jozef GROCHOWICZ were the Honorary International Conference Chairs.

The Symposium covered recent scientific and technological advances in creating high value bioresources and consumer products. Key themes included novel research approaches and innovative engineering solutions for increasing sustainable food production, improving nutritional quality of foods and adding value to raw materials to enhance human well-being and confer environmental benefits. At the Symposium Opening, New Zealand’s Minister of Commerce and Consumer Affairs, the Hon Paul GOLDSMITH presented the official opening speech from the Hon Steven JOYCE (Minister for Economic Development, Minister of Science & Innovation); Symposium Convener Dr. Dongxiao SUN-WATERHOUSE welcomed the delegates and provided details about the organization of the Symposium, the first CIGR event to be held in Oceania; Mr. Steve MAHAREY (Vice Chancellor of Massey University, the host organisation) also welcomed delegates to Massey University. Four international and four New Zealand local invited speakers presented keynote speeches at the Symposium, including Dr Max Kennedy, the National Manager of Biological Industries of New Zealand Ministry of Business, Innovation and

Employment (MBIE), and three CIGR Senior members (Prof. Da-Wen SUN, Dr. Amauri ROSENTHAL and Prof. Umezuruike Linus OPARA). Details about the Local Organising Committee and International Scientific Committee members, keynote speeches, concurrent sessions, are provided below.



List of Keynote Presentations:

Mechatronics enhances profitability in the meat industry: Future challenges (Mr. Geoff BATES, New Zealand)
Energy generation and biopharmaceutical manufacturing from aquatic & waste resources (Prof. Matt CROUGHAN, USA)
Potential of nutrigenetics and nutrigenomics for enhancement of human health (Prof. Lynnette FERGUSON, New Zealand)
Creating value from bioresources and improving agricultural and horticultural productivity (Dr. Max KENNEDY, New Zealand)
Feeding 9 billion in 2050 – The role of postharvest technology in harnessing bioresources (Prof. Umezuruike Linus OPARA, CIGR)
High pressure processing: Advances and trends (Dr. Amauri ROSENTHAL, CIGR)
Challenges for food science and technology for the development of functional foods (Prof. Harjinder SINGH, New Zealand)

Emerging technologies for food processing and biosystems engineering (Prof. Da-Wen SUN, CIGR)

Symposium Programme Sessions:

Monday 16 November—Welcome Reception

Tuesday 17 November —Symposium

Four Keynote Presentations

Concurrent Session 1 “Advanced characterisation techniques”

Concurrent Session 2 “Novel characterisation methods”

Concurrent Session 3 “Biotechnology and bioprocess”

Concurrent Session 4 “Sensory research & wine science”

Concurrent Session 5 “Meat and protein alternative”

Concurrent Session 6 “Postharvest management & technologies”

Poster Viewing

Wednesday 18 November —

Two Keynote Presentations

Concurrent Session 1 “Fish and marine products”

Concurrent Session 2 “Dairy science and agri-research”

Concurrent Session 3 “Bioprocess and food properties”

Concurrent Session 4 “Advanced food processing technologies”

Concurrent Session 5 “Nanotechnology and green chemistry”

Concurrent Session 6 “Food safety and microbiology”

Concurrent Session 7 “Food functionality and health claims”

Concurrent Session 8 “Postharvest management and technologies”

Poster Viewing

Thursday 19 November —

Two Keynote Presentations

Concurrent Session 1 “Industry panel”

Concurrent Session 2 “Fruit, vegetables and cereals”

Concurrent Session 3 “Biotechnology and bioengineering”

Concurrent Session 4 “Novel R&D approaches”

Poster Viewing

Closing Ceremony: Student oral and poster prize presentations, Closing Speech from the Convenor of this symposium and an Invitation Speech about the next symposium to be held in Brazil.

Friday 20 November —Free meetings or visit Auckland.

*Dr. Dongxiao SUN-WATERHOUSE,
the Symposium Convener*

CIGR Section Boards (2015-2018)

Section I:	<i>Land and Water</i>	Chair: Gerrit J. Carsjens (Netherland)
Section II:	<i>Structures and Environment</i>	Chair: Eberhard Hartung (Germany)
Section III:	<i>Plant Production</i>	Chair: Qin Zhang (USA)
Section IV:	<i>Energy in Agriculture</i>	Chair: R. Cengiz Akdeniz (Turkey)
Section V:	<i>System Management</i>	Chair: Remigio Berruto (Italy)
Section VI:	<i>Bioprocesses</i>	Chair: Amauri Rosenthal (Brasil)
Section VII:	<i>Information Technology</i>	Chair: Seishi Ninomiya (Japan)

All correspondence and information on forthcoming activities should be sent to:

CIGR GENERAL SECRETARIAT

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