



International Commission of Agricultural and Biosystems Engineering

Newsletter 114 September 2018

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"...to serve - on a world-wide basis and through its members - the needs of humanity by fostering mutual understanding, improvement and rationalisation of sustainable biological production systems while protecting nature and environment and managing landscape through the advancement of engineering and allied sciences..."

Web: www.CIGR.org

Journal: www.CIGRjournal.org

Contact us: secretarygeneral@CIGR.org

Outgoing President's Message



**Prof. Tadeusz
Juliszewski**
Outgoing President,
CIGR

Agricultural and biosystems engineering has been – and still is – the essence of my professional life. It was 44 years ago when I started to work in the Agricultural University in Cracow (Poland)... From the beginning of my career I was fortunate to correspond with peers throughout the world (because to do it in person was at that time impossible) and establish collaborative partnerships. These collegial relationships, on all continents, developed into friendships. It was through their confidence and support that I became the President of CIOSTA (1999-2001), the Chairman of the Vth Section of CIGR (2002-2006), and the President of CIGR (2012-2018). Have I met their expectations? Have I met the expectations of the members of international organizations that I led? The judgement rests will all those with whom I have met and collaborated with over these years past. I want to believe that I have not failed to fulfil the hopes and expectations trust upon me.

Today, I look at the agricultural and biosystem engineering profession from a perspective that is somewhat philosophical. I ask myself: *How we can shape and maintain life in all its wonderful forms and manifestations by applying engineering technology and methods?* Through these, we can produce biological raw materials that meet the quantitative and qualitative standards of processing industry as

well as expectations of consumers. I also note that our profession's awareness and attitude towards production and processing of biological raw materials (food and non-food types) has changed. Today, we design and organize the productivity of the production of plants and animals in the context of its impact on the natural environment, thinking about the future not only of ourselves but of future generations.

The sensitivity of the biosystems engineers is different from other professionals. Its value derives from *bio* in the term 'biosystem'. *Bio* stands at the beginning of the word and defines the essence of the system and draws attention to the most important component, a live organism.

Recent developments in science and technology make us capable of shaping plant and animal forms of life in quantitative and qualitative terms, not only by an engineering (technical) choice of the parameters for the cultivation of plants and for the husbandry of animals, but also by genetic modification (GMO). Apart from the use of chemicals, mechanization and irrigation, contemporary engineering can alter the information code inscribed in the DNA in a largely controlled manner. Whatever was done by Nature (without ascribing a value judgement) humans can now achieve in the laboratory, obtaining the varieties of plants and animals resistant to diseases and pests, and showing unprecedented productivity (expressed in the yield of plants, quantity of milk per cow, transforming fodder into meat, etc.). This technology opens new opportunities to produce foods for humans, and fodder for animals. It also opens new fields to produce non-food raw material for further processing: oils and carbohydrates for fuel industry (biofuels), fibres for clothing industry, herbs for cosmetic and pharmaceutical uses, lumber for construction, etc... However,

unbiased scientific studies on genetically modified organisms are necessary to dispel various doubts on biological risk and the ethical use of these technologies.

In the nutshell, the most important contemporary issues that I see from CIGR's perspective, from a global perspective are: Food, water, and energy. They are articulated unambiguously in the Global Initiative of ASABE in which CIGR has participated as a partner for several years, organising joint workshops and scientific conferences. The contemporary engineers possess the technical means to solve these problems, i.e. to provide people with wholesome food, clean water, and renewable energy. The practical application of our knowledge and the use of technical options depend solely on us, engineers. The decisions pertaining to investments and modernization are usually taken at the governmental, administrative, political or financial level. I wrote about it in earlier CIGR – Newsletters and I repeated it many times during public appearances during our (CIGR) conferences and congresses. It is still my opinion that establishing contacts (and keeping them alive) at governmental, political, and financial spheres should be one of the priorities in our organizational activities.

We were now aware that somewhat in parallel to the activities of CIGR, the activity of

an organisation (ALEIA) grouping the students of agricultural and biosystem has developed. The contacts which have been recently established by Fedro Zazueta (the General Secretary of CIGR) with that student organization should be widened meeting the expectations of our young colleagues (probably the future CIGR members). Perhaps, should the setting up a worldwide organization of the students of agricultural and biosystem be jointly considered?

“Time to say goodbye”. It is time to say these words to my Colleagues and Friends throughout the world, all those whom I got to know while being the President of CIGR. For me, it was a distinction and honour that I was able to meet you – and I direct these words to everybody with whom I ever shook hands and talked with. Thank you very much for your cooperation. To the incoming Presidium, I wish success in leading CIGR so that the organization meets the expectations of people that we work for, and to CIGR members I wish the satisfaction from their contributions and from the affiliation to the organization.

If you happen to be in Cracow (Poland), do not forget that Tadeusz still works at the University of Agriculture and that meeting you will be a joy for him.

Third/Final Call for Venue Proposals: 2024 CIGR International Meeting

The CIGR Presidium is requesting a statement of interest from member societies for hosting the 2024 CIGR International Conference.

If interested, please contact or send a letter of intent to Prof. Fedro Zazueta at secretarygeneral@cigr.org.

The [2020 CIGR World Congress](#) will be held in Quebec Canada, and the [2022 CIGR International Meeting](#) will be held in Kyoto, Japan.



CIGR2024
Your country?

New 2019-2023 CIGR Auditors

The terms of service for the auditing team is four years starting January 2019. The main responsibilities of the CIGR Auditors Team are oversight of the financial management and budget of CIGR, and reporting to the Executive Board and the General Assembly on these two items.

A call for auditor nominations was sent to CIGR member society representatives for the upcoming 2019-2023 term.

There was one nominated team which was co-opted by the CIGR Presidium without objection from member society representatives. The team consists of three members that have a track of record of professional excellence and service to CIGR extending for many years. The CIGR Auditing Team includes the following individuals:



Prof. Peter Schulze-Lammers, Chair
University of Bonn
Germany
iAABE Fellow

Peter Schulze Lammers grew up on arable farm in northern Germany and attended the high school near his home village.

After graduation at the Technical University of Munich (TUM) as a mechanical engineer he worked as a junior researcher at the Institute für Landtechnik for of TUM, where he graduated as a Doctor of Engineering in 1984. He chaired the department of technical calculations in the tractor engineering division for the Deutz company in Cologne, Germany and later held the same position in the heavy truck engineering division of IVECO in Ulm, Germany.

In 1992 he became a professor at the Institut für Landtechnik at the University of Bonn. He is a board member of the German Society of Engineers (VDI, Max-Eyth-Gesellschaft Agrartechnik), starting in 1989.

He served as secretary general of CIGR from 1998 to 2005, was the local organizer of the 2006 CIGR World congress in Bonn and is a member of the CIGR Executive Board representing EurAgEng. He was President of EurAgEng for 2010 and 2011 and is now a member of the EurAgEng Executive Board. His research at the University of Bonn focusses on physical sensors for assessment of soil and plant water status and technology for sugar beet cultivation.



Prof. John K. Schueller
University of Florida
USA
iAABE Fellow

John K. Schueller is a professor of mechanical and aerospace engineering and agricultural and biological engineering at the University of Florida. A member of ASABE, ASEE, ASME, Club of Bologna, EurAgEng, IEEE, ISAE, SAE, and SME, he is editor-in-chief of Computers and Electronics in Agriculture.

Prof. Schueller's diverse interests have taken him on technical travels to thirty-five countries and to service on supervisory committees for over four hundred postgraduate students in ten major fields. He lectures in machine design, mechatronics, and manufacturing and is known for his leadership in precision agriculture and agricultural machinery research and technology transfer.



Prof. Zhang Xiansheng
Chinese Academy of
Agricultural Mechanization
Sciences
China
CSAM Secretary General

Zhang Xiansheng is Secretary General of the Chinese Society for Agricultural Machinery (CSAM), professor of the Chinese Academy of Agricultural Mechanization Sciences (CAAMS), and a high-level expert of the China National Machinery Industry Corporation Ltd. (Sinomach). He serves as Vice-chair of the China Technology Association for Standardization of Machinery Industry, and Vice-chair of the National Committee for Standardization of Agricultural Machinery.

Prof. Zhang participated in the organization of the 2004 CIGR International Conference held in Beijing, China. He also participated in the organization of the XVIII CIGR World Congress held in Beijing, China, in 2014, where he secured sponsorship funds for the Congress. He attended the XIX CIGR World Congress in Turkey in 2018 and participated in CIGR governance activities.

Prof. Zhang is engaged in agricultural equipment standards, industry research and management. As an expert in the field of agricultural engineering, he presided over more than ten scientific research projects related to agricultural equipment, was a member of high level departments and committees of the China State Council. Also, he participated in the drafting of over 150 national and industrial standards, and in the formulation of ISO/TC 23 international standards.

Perpetual Storage and Access to CIGR Related Conference Proceedings

This service is provided at no cost to member societies.

CIGRproceedings.org is a scientific and technical article management web site was created for the use of CIGR member societies. This service uses the Open Journal System to provide a tool that can be used to store and access CIGR event materials such as proceedings, memoirs, technical reports and other materials in perpetuity.

CIGRproceedings.org responds to the need for a location where materials related to CIGR scientific and technical events can be held. Often, papers from conferences are placed on a web site that ceases to be maintained or exist after a few years with the consequent loss of useful knowledge. Access is open.

Any CIGR sanctioned event can request that a space be created in CIGRproceedings.org. The requesting member must provide all labor related to uploading manuscripts and entering related metadata. This is best done by requiring that authors upload these items themselves as part of the submission process. To request the creation of an issue in CIGRproceedings.org please write to secretarygeneral@CIGR.org.

It is also important to note that materials uploaded to CIGRproceedings.org are not peer reviewed. Those wishing to have a rigorous peer review process should use CIGRJournal.org.

CIGR Proceedings

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2014 World Congress on Computers in Agriculture

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World Conference on Computers in Agriculture, San Jose, Costa Rica, 2014

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Fred Conte, Abbas Ahmadi

[Mathematical Programming Models to Increase Land and Water Use Efficiency in Semi-arid NE-Brazil](#) PDF
Heinrich Hagel, Christa Hoffmann, Reiner Doluschitz

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JOURNAL CONTENT

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CIGRproceedings.org site for a sponsored CIGR Congress

CIGR Incorporation

As part of the transition of the Secretary General's Office from Japan to the US was the incorporation of CIGR as a non-profit corporation in the US. An application was filed with the Florida Department of State under the official name "CIGR: International Commission of Agricultural and Biosystems Engineering, Corp." The principal office of CIGR is Rodgers Hall 169, University of Florida, Gainesville FL.

The stated legal purpose is purely for educational and scientific purposes. The manner of election of officers is as stated in the CIGR statutes and the initial set of officers is the current CIGR Presidium.

With CIGR registered as a non-profit organization it has applied for tax exempt status, allowing it to focus all its resources on activities related to its mission.

Interested in becoming a CIGR Member?

You may already be a member. CIGR is composed of Agricultural and Biosystems (or biological) professional organizations worldwide. Check cigr.org. If your society is a member, you are a CIGR member. If not, you can apply for individual membership or seek assistance to create a professional society in your country.

Latin-American and the Caribbean Association of Agricultural Engineering Students



María Cristina Porras Zúñiga
Secretary General, ALEIA
2017-2018

ALEIA¹, the Latin-American and the Caribbean Association of Agricultural Engineering Students was founded August 13, 2010 during the First Congress of Latin-American and the Caribbean Students (CLEIA²) that was held at the National Agrarian University of La Molina³, Peru.

ALEIA is incorporated as a non-profit private entity whose mission and activity are of

Current ALEIA National Student Organization Members

- Asociación Costarricense de Estudiantes de Ingeniería Agrícola y Biosistemas (ACREIAB) - Costa Rica;
- Asociación Colombiana de Estudiantes de Ingeniería Agrícola (ACEIA) - Colombia;
- Asociación Mexicana de Estudiantes de Ingeniería Agrícola (AMEIA) - México;
- Federação Brasileira dos Estudantes de Engenharia Agrícola e Engenharia Agrícola e Ambiental (FEEAGRI) - Brasil;
- Federación Nacional de Estudiantes de Ingeniería Agrícola (FENEIA) - Perú.

¹ *Asociación Latinoamericana y del Caribe de estudiantes de Ingeniería Agrícola.*

² *Primer Congreso Latinoamericano y del Caribe de Estudiantes de Ingeniería Agrícola.*

³ *Universidad Nacional Agraria La Molina.*

a scientific, technical, and educational nature. Its members are national undergraduate student associations and undergraduate students of agricultural engineering and other related professions. Current national associations that are members of ALEIA include the countries of Argentina, Brasil, Colombia, Costa Rica, Chile, Ecuador, Mexico, Paraguay and Peru.

ALEIA, through its congress and other activities seeks, in all related professional fields, to promote science and technology, improve engineering education, and translate knowledge and technology developed by the profession.

Amongst ALEIA's immediate goals is to continue growth of its membership, following an inclusive and collaborative path that strengthens the profession in the American Continent.

ALEIA's governance consists of a general assembly as the ultimate authority, a board of representatives, and a team of executive officers (See inset photo).



ALEIA's 9th and latest Congress: CLEIA2018 was held from the 17th through the

¹ *Primer Congreso Latinoamericano y del Caribe de Estudiantes de Ingeniería Agrícola.*

¹ *Universidad Nacional Agraria La Molina.*

21st of September, 2018 at the National University of Colombia, Bogota, Colombia. The congress included the participation of 180 undergraduate students, young professionals, and invited engineers and faculty from nine different countries.

The 10th CLEIA will be held in 2019 at the Universidad Nacional Autonoma Chapingo (*National Autonomous Chapingo University*), Mexico. All are welcome to attend.

For information please contact ALEIA at agricola.aleia@gmail.com



Opening Ceremony of CLEIA 2018. Sitting left to right: *Sebastián Montaña Rodríguez, President ACEIA; Freddy Arias Guerrero, President ASIAC; Jose Arturo Belaya, President SAC; Fedro S. Zazueta, Secretary General CIGR; Eugenio Hernandez, Secretary ALIA; David Leopoldo Sanchez Rubio, President ALEIA; and Carolina Maria Sanchez, Professor UNAL. Master of Ceremonies (Standing) Prof. Robinson Osorio Hernandez, UNAL.*

Engaging With Agricultural and Biosystems Engineering Students and Young Professionals

A strategic direction for CIGR set forth during the meeting in Antalya, Turkey was to “Connect young academics and professionals, make CIGR more attractive and accessible” (CIGR Newsletter 113, p. 3). Following this directive, the CIGR Presidium met with past presidents of the Latin-America and the Caribbean Association of Agricultural Engineering students with an aim to develop a

strategy for inclusion in CIGR activities of students, young academics, and young professionals.

Participants in this meeting discussed possible directions and long-term goals that would result in the active participation of individuals, during their professional studies or early career, in national societies, regional associations and CIGR.



ALEIA and CIGR Video Conference Participants

The meeting was held via video conference at the School of Engineering at National University of Bogota. The participants in this meeting included, **Screen Clockwise:** Prof. Chen Zhi, CIGR President (China); Rodrigo Contreras, ALEIA Past Secretary General (Mexico); Tadeusz Juliszewski, CIGR Past President (Poland); Oscar Duque Colmenares (Colombia), Manager North and Central America Trelleborg Offshore; Linus Opara, CIGR

Incoming President (South Africa). **Standing, left to right:** Vitor Gonçalves de Silva (Brasil); Ma Cristina Porras Zúñiga, Secretary General AELIA (Costa Rica); David Leopoldo Sanchez Rubio, ALEIA President (Colombia); Heler Samir Perez Cuba ALEIA Past President (Perú); Fedro Zazueta, CIGR Secretary General (USA). **By phone, not in the photo:** Prof. Samuel Garcia Silva, ALIA President (Mexico); and Remigio Berruto, CIGR President Elect (Italy).

Interested in Becoming a CIGR Working Group Member to Promote Students and Young Professionals?

CIGR is seeking members interested in participating in a Workgroup to develop a strategy and actionable items that will lead to early and continuous engagement of agricultural and biosystems (or biological) engineering students, young professionals and young academics.

If you are interested in contributing to this vital task, please write to: secretarygeneral@CIGR.org

Upcoming CIGR Conferences



MetroAgriFor intends to create an active and stimulating forum where academics, researchers and industry experts in the field of measurement and data processing techniques for Agriculture, Forestry and Food can meet and share new advances and research results. Attention is paid, but not limited to, new technologies for agriculture and forestry environment monitoring, food quality

monitoring, metrology-assisted production in agriculture, forestry and food industries, sensors and associated signal conditioning for agriculture and forestry, calibration methods for electronic test and measurement for environmental and food applications. For more information please see: <http://www.metroagrifor.org/>.



Effective and efficient management of water resources is vital to agricultural productivity worldwide, making water security and food security inexorably linked in sustaining human well being.

Demand for fresh water is expected to outpace availability, threatening food production, public health, biodiversity, and energy generation, as well as foreign policy and international security. Strategies to increase the efficiency of

water use and enhance agricultural productivity are in critical need and require a systematic approach that involves actions at all levels, from production techniques to land use management, sustainable intensification, climate smart agriculture, and collaboration among governmental agencies, private industry, and academia.

The American Society of Agricultural and Biological Engineers, in collaboration with the

Indian Society of Agricultural Engineers, is proud to present Global Water Security for Agriculture and Natural Resources, to bring together farmers, researchers, practitioners, entrepreneurs, and policy makers on a common platform to discuss current and future water security problems, share research, and discuss creative solutions that can be applicable at

various scales in different regions. The conference will specifically focus on water security for producing food, fiber, and energy crops as well as maintaining water quality and quantity needed for ecosystem health and services. For more information see: <https://asabewater.org/>



12TH CIGR SECTION VI INTERNATIONAL SYMPOSIUM
(Postharvest Technology & Bioprocess Engineering)
**Innovation and Technologies for Sustainable
Agricultural Production and Food Sufficiency**
Monday 22 – Thursday 25 October, 2018
Institute for Tropical Agriculture (IITA), Ibadan, Nigeria

The Symposium Organizing Committee extends to all CIGR members and related professionals an invitation to submit abstracts on any of the

conference sub-themes. For information on paper submissions please visit www.cigrvinigeria2018.org



AFITA/WCCA 2018 Conference
Research Frontiers in Precision Agriculture
October 24 - 26, 2018
Victor Menezes Convention Centre, VMCC, IITB

This joint global conference, organized by Asia-Pacific Federation for Information Technology (AFITA), International Network for Information Technology in Agriculture (INFITA) and Indian Society for Agricultural Information Technology (INSAIT), on 'Research Frontiers in Precision Agriculture' is scheduled from October 24th to 26th, 2018 at Indian Institute of Technology Bombay (IIT Bombay), Mumbai, India. We sincerely invite you to join AFITA/WCCA2018

conference, which aims to be a premier international forum for academicians, researchers, entrepreneurs and executives to present the state of the art of Precision Agriculture.

Please download the [Event Brochure](#) and [visit website](#) for conference details and updates.



**ASABE'S 21ST CENTURY WATERSHED TECHNOLOGY
AND
Vietnam wATER Cooperation Initiative (VACI)**
Improving quality and quantity in agriculture at the field, watershed,
and regional scales
March 18-24, 2019 Hanoi, Vietnam

This is the sixth of a series of highly successful international conferences organized by ASABE and VACI. Over the last decade there has been a maturing of watershed science with new research findings and modeling approaches. These new solutions have resolved many of the problems that first faced watershed managers in dealing with water quality and quantity

issues, but there are also emerging impediments to watershed assessments and achieving water quality goals. This international conference 21st Century Watershed Technology: Improving Water Quality and Environment will look at emerging problems and new solutions to managing watersheds to meet water quality and quantity standards.



CIOSTA, CIGR V and the Institute of Bio-Economy and Agri-Technology (iBO) of the Centre for Research & Technology Hellas (CERTH) would like to invite you at the **XXXVIII CIOSTA & CIGR V International Conference**, to be held in Rodos, Greece, in 24-26 June,

2019. The conference aims at promoting the exchange of knowledge on "Research and Innovation for the Management of Agricultural and Forestry Systems". For more information please see <http://ciosta2019.com/>



The European Federation for Information Technology in Agriculture, Food and the Environment (EFITA) and the Institute of Bio-Economy and Agri-Technology (iBO) of the Centre for Research & Technology

Hellas (CERTH), would like to invite you at the 12th EFITA International Conference, to be held in Rhodes, Greece, in 27-29 June, 2019. For more information please see <http://efita2019.com/>



The primary goal of this conference is to bring together the elite scientists from all over the world, and to provide a unique forum for

exchange on agricultural and biosystems challenges and opportunities. For information please see <http://www.cigr2020.ca/en/>



The XX CIGR World Congress 2022

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*Sustainable Agricultural Production
- Water, Land, Energy and Food -*

December 5 (Mon)–9 (Fri), 2022

Venue: **Kyoto International Conference Center, Japan**

The theme of this CIGR World Congress "Sustainable Agricultural Production - Water, Land, Energy and Food" will underpin the need for collaboration and cooperation of individuals from a wide range of professional backgrounds. This congress will provide an excellent international

platform for academicians, researchers, engineers, industrial participants, and students from around the world to share their research findings with global experts in all areas related to agricultural engineering. For information please see <http://CIGR2022.org>.