



International Commission of Agricultural and Biosystems Engineering

December 2024

Newsletter 139

"...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..."

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Message from the President



Claus Sorensen
CIGR President

Dear colleagues and friends of the global Biosystems Engineering Community:

It is an honor to accept the position of being the next President of CIGR and have great respect for the responsibilities it entails. I am ready to contribute at my best to the common good of CIGR and not the least advancing this organization of ours in continuation of what has come before and embrace new emerging responsibilities for the Agricultural and Biosystems community.

In many ways, the agri-food system is undergoing a profound transition, or one could argue that the agri-food system is on the verge of a paradigm shift in these years. The agricultural sector urgently needs transformation to achieve greater sustainability from economic, socioeconomic, and environmental perspectives. Productivity, food security, and environmental protection must be sustained together with improved biodiversity and reduction of greenhouse gases to address the hazards of climate change. The globalization of markets has increased the competitiveness whereas the consumers' needs for healthy, safe and locally produced products highlight the need for high quality production. According to Food Agriculture Organization (FAO), in the next 20 years world food production must increase by 50%, while 80% of that increase must come from sustainable intensification.

Meeting these profound challenges requires the development and implementation of innovative tools and techniques currently being funded and

researched all over the world. Exciting advances include Smart Farming applications involving data collection (edge intelligence), data processing, data analysis and automation technologies in the overall value chain, that in an integrated way allow operation and management improvement (analytics) of a farm with respect to standard operations (near real time) and re-use of these data in improved chain transparency (food safety) and chain optimization (smart data). Other advances include automation and robotics technologies improving overall productivity.

Sustainable agri-food systems involve large-scale coordination of farming and value chain operations, and it require, for example, extensive digital devices and infrastructure technologies to enable and provide data and digital information chains. A new technology understanding is underway, where digital/data technologies are not just replacing old technologies and practices “one-to-one”, but have to be seen as part of a socio-technical practice, where it often changes the very practice it is a part of, while at the same time complying with a number of system constraints. Addressing these needs requires an interdisciplinary approach that goes beyond the technology itself. It involves understanding human to technology interactions, changing mindsets about how digitalization integrates with production systems, and focusing on a total system perspective. This change of technology development and implementation means we are looking into an envisioned Biosystems Engineering Science that include an extensive interdisciplinary approach involving competences like data science, computer science, data analytics, modelling, system engineering (AI, ML), process analytical technology, communication technologies, living labs, actor-network analysis, social science/economics/business/organization, food processing, consumer behavior, socio-technical analysis, production and operations management,

and extensive domain knowledge. In this way, pending agricultural innovations follows two main development pathways, namely firstly the traditional one as an incremental enabler of production efficiency and sustainability metrics, while the second one and increasingly important one is as an enabler of radical innovation and systemic changes. This latter one enables the design of new processes, new business models, and in that way function as a game-changer by changing farmer identity, farm work, farmer skills, ownership, privacy, and ethics. By adopting a systems thinking perspective, specifically digitalization benefits the entire organization or production system by improving workflows, reducing costs, and enhancing user experiences. This approach allows farmers and organizations to remain agile and adaptable, responding quickly to market changes and technological advancements.

CIGR is in a unique position to promote and facilitate this new technology development paradigm. By combining the fundamental Agricultural Biosystems Engineering capabilities with the mentioned multi-disciplinary approach, CIGR can play a pivotal role in advancing the development of pending innovations and not least promote the adoption of these innovations. A key prerequisite is to create awareness and understanding within the Agricultural Biosystems Engineering community for this paradigm shift and its implications.

Many thanks go out to Prof. Seishi Ninomiya for the excellent job he has carried out as President of CIGR for the last 2 years. His term has been focused on promoting agricultural engineers and CIGR and its activities around the world. To mention a few – 6th CIGR International Conference 2024, JEJU Island, Korea, May 2024 and XX CIGR World Congress: Sustainable Agricultural Production - Water, land, Energy and Food - together with other arrangements co-sponsored by CIGR. Prof. Seishi Ninomiya has been a keen advocate for addressing the challenges that the agri-

food domain is facing and how CIGR and Biosystems Engineering contribute to meeting these challenges and create innovations. Deep felt thanks for your efforts and looking forward to the continued cooperation within the CIGR Presidium and beyond.

Agricultural and Biosystems Engineering is and has been the focus of my academic endeavors and I have been involved internationally in EurAgEng, ASABE, Nordic Association of Agricultural Scientists, and in CIGR in various capacities. I have always taken great pleasure and pride in working in these international organizations – it has provided motivation for my research within Agricultural and Biosystems Engineering, provided me with great networking and the making of many colleagues and friends over the years. CIGR is a global organization striving to promote and advance the community of Agricultural and Biosystems Engineering through a board network of regional societies involving fellow professionals all over the world creating collaborations, joint consortia, company contacts, university contacts, connect with other regional societies, etc. A key element in the operational running of a society like CIGR is an effective Secretary General and here Prof. Fedro Zazueta is a superb example of an effective and approachable secretary, and I am thankful and sincerely looking forward to the continued cooperation with him and the other members of the Presidium. Here I also want to thank my friend and outgoing Presidium member. Prof. Remigio Berruto, for his service to CIGR as President and beyond.

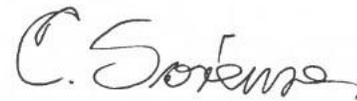
I see CIGR as a key player in promoting the development and researching of advanced technologies for the future of agriculture and the food system. CIGR is unique in its pursuit of a sustainable food production through the application of technology intervening with a biological production system. As such, we also need to strengthen the awareness/visibility of the uniqueness of CIGR to scientists, the public, to get

young professionals involved, etc. This awareness about attracting young people is growing but we need to reinforce it.

During my time as President and beyond, I will work toward bringing CIGR forward, by sustaining traditional CIGR services to the Biosystems Engineering community, on facilitating global cooperation and networking, and specifically on promoting the strategic focus on interdisciplinarity and the systems approach in CIGR goals. The last years has seen key activities and efforts from the Technical Sections and Work Groups in promoting

new scientific activities like AI and Circular Bioeconomy, to mention a few. I wish to extend my sincere thanks to all for your efforts and bringing new ideas to the table to progress CIGR.

As the year of 2025 is around the corner, I would like to wish a happy and prosperous new year to all in the CIGR community. I begin my Presidency with enthusiasm and looking forward to the cooperation with the global Biosystems Engineering community and a strong CIGR. I am convinced we are in for some exciting times.



Result of elections for Incoming President

Dr. Stephane Godbout was elected as CIGR Incoming President on the election of December 15th, 2024.



CIGR Incoming President Dr. Stéphane Godbout

After his Ph.D. studies, Dr. Godbout started his professional career in 1997 at the Quebec Hog Development Center Inc. (CDPQ) in Quebec as R&D engineer. He served on many committees and workgroups to produce guides, training courses, symposiums and technical reference materials for improving the housing design and reducing the environmental impact of the swine production. In November 2000, he moved to the provincial Institute for Research and Development in

Agricultural Environment (IRDA) as a Research Engineer where he continues developing and leading an engineering research program on the environmental impact of animal production. He is co-author of more than 175 peer reviewed papers and holds two patents.

Early in his career he developed strong ties with University Laval where he holds an Adjunct Professor position and trained more than 50 master and doctoral students. Many of his students today occupy research or professor positions in many countries. During his professional career, he participated in many international meetings and symposiums establishing links with foreign researchers and Institutions building friendly and long-lasting relationships.

He is a member of the CSBE of more than thirty years, where he was regional director (from 2008 to 2021) and more recently was elected president. Over his career he received many awards and recognitions, such as Young Engineer of the Year, John Turnbull, and Fellow awards.

He was appointed representative to the CIGR executive Board in 2017 where he actively participated in setting the direction of CIGR. However, his involvement with CIGR began in 2002 when, as president of the organizing committee, hosted the XVII CIGR Word Congress jointly with the CSBE. Since then, he participated in CIGR International Meetings and CIGR World Congresses. Held in 2010, the XVII Word Congress brought together more than 800 delegates from 54 countries, allowing it to obtain a special distinction

from the city of Quebec (ambassador of the year). He was also the chairman of the organizing committee of the 5th CIGR International Conference 2020 held online jointly with the CSBE annual meeting in 2021. He is also a member of CIGR Section II.

His extensive experience and active engagement within the CIGR framework make him a qualified candidate for the roles of Incoming President, President, and Past President for the next six years.

Visit to Innovate Canada 5-8 Nov 2024

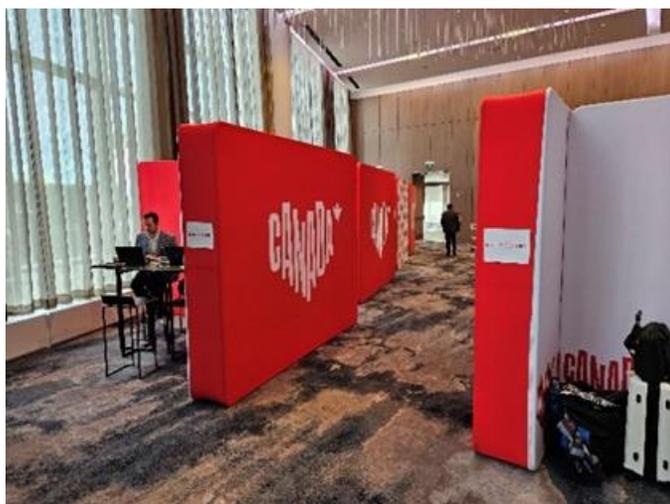
As part of my capacity in the leadership of CIGR, I was invited to join the signature event, **Innovate Canada 2024-Agribusiness**, which was held in Edmonton, Alberta, from November 5 to 8, 2024. Innovate Canada is a gathering of 10-15 distinguished executives from leading agribusiness associations and companies globally. It provided an unparalleled opportunity to delve into Edmonton and Canada's thriving agribusiness ecosystem. The program explored cutting-edge advancements in **crop sciences, food and agricultural technology, precision agriculture, plant protein, and biomaterials**, among other key themes.

The event consisted of immersive and interactive tours of world-renowned facilities, including Innotech Alberta and the Leduc Food Product Development Centre. The visit with Bio-Industrial Services Division of InnoTech Alberta, Vegreville, Alberta, highlighted best management practices for sustainable production of staple and new crops under changing environmental conditions. One example is industrial hemp varieties suitable for fiber, grain, and feed markets. For the visit to the Leduc Food Processing Development Centre, the

focus was on the working with Food and bio-processing value-added facilities and services. This includes dedicated food scientists, technologists, business development officers and value-added industry stakeholders as the team collectively contributes to the growth of the value-added industry through innovation and commercialization.



Another key part of the event included one-to-one meetings with destination and agribusiness industry experts from Kelowna, Calgary, Edmonton, Winnipeg, Saskatoon, Toronto, Niagara Falls,



advances in the sector. Specifically, the latter involved advances in automation, robotics, and digitalization in the agri-food domain.

Impressions from the Canada event

For me, the event has fostered prospective connections with the potential for new collaborations and destinations for CIGR's events. I learned a lot about the Canada's agri-business and research and development ecosystem and are now much more informed about the opportunities for further cooperation. Also on the social side, it was a pleasure attending the event and hear about what the different destinations and great networking.

Claus Grøn Sørensen

Quebec City, and Charlottetown. This provided a deeper understanding of the possibilities for hosting a conference or meeting, as well as learning about the areas agribusiness and research and development ecosystem, including the latest

International committee of the Semear Digital project visits Embrapa and partner institutions

In early October, researchers from the United States and Germany held meetings and technical visits to participating institutions and to the places where the Science Center for Development in Digital Agriculture (Semear Digital) operates. The group is part of the project's International Advisory Committee, which is funded by the São Paulo Research Foundation (Fapesp), and is led by Embrapa Digital Agriculture.

Launched in 2023, the initiative focuses on the inclusion of small and medium-sized rural producers in the process of digital transformation of the field. The objective is to promote connectivity solutions in rural areas and the insertion of technologies in production processes, involving artificial intelligence and remote sensing, automation and precision agriculture, traceability and certification.

The project's actions are carried out in ten Agrotechnological Districts (DATs) selected in the five regions of the country, covering practically all Brazilian biomes and with the potential to reach up

to 14 thousand small and medium-sized rural properties. The teams have already started work on the DATs, with the exception of the municipality of Breves, in Pará. The first visit will take place at the end of this month, when meetings will be held with local rural producers, associations, internet service providers, educational institutions and agribusinesses.

The Advisory Committee is made up of internationally recognized scientists in areas that are the focus of the Center: Douglas Morton, from NASA; Ermias Kebreab, from the University of California; Fedro Zazueta Ranahan, from the University of Florida; and Mihai Datcu, from the German Aerospace Center. In addition to promoting exchanges with foreign institutions, the Committee has the role of monitoring the team's activities and contributing with suggestions regarding research opportunities and the direction of the project.



The Advisory Committee is made up of internationally recognized scientists in areas that are the focus of the project. Photo: Graziella Galinari

The visit to Brazil, held from September 30 to October 4, began at Embrapa Digital Agriculture, in a meeting attended by the Company's president, Silvia Massruhá, who is also the researcher responsible for the project, and the Unit's general head, Stanley Oliveira. The Embrapa team presented activities carried out in the DATs of Caconde (SP), Vacaria (RS) and Guia Lopes da Laguna (MS) with studies on the application of artificial intelligence techniques, computer vision and digital certification in the development of solutions for field operations.

"We had a first year of a lot of articulation and definition of the new DATs, whose activities are taking shape now. With this visit, the members of the international committee brought valuable contributions to the planning, validation of the technologies developed and the management of the knowledge that is being generated", says Massruhá. When evaluating, in general, the mission assumed by the project, Professor Fedro Zazueta, one of the pioneers in the application of information and communication technologies to agricultural problems, highlighted the role of democratization of technology focused not only on increasing productivity, but also on improving the quality of life of farmers. "The economic return is not the only one, but it is one of the important aspects that

reflect this improvement. This shows the need to connect these farmers not only to technology, but also to other actors in the production and supply chain, including to open new markets for their products", he adds.

Among other suggestions, Douglas Morton also addressed interactions focused on rural youth. "We know that young people are more interested in technologies, so it is important for the project to invest in strategies to connect with this audience. Overall, the project is moving in an impressive direction with great potential."

One of the coordinators of Semear Digital, Embrapa researcher Jayme Barbedo, explains that the project has carried out studies to identify barriers that farmers face to the adoption of technologies. "The results will bring information that can help in these strategies of interaction with rural producers". For him, the Committee's visit brought important elements for the evolution of the project. Another important point mentioned by the members of the Committee, according to researcher Luciana Romani, who is also part of the coordination of the project, refers to climate change. "They pointed out that Semear Digital should look for ways to support farmers through training and indicate adaptation alternatives in the short and medium term."

Visits to Research Institutions

The International Committee's program in Brazil also included a visit to the Agronomic Institute (IAC), in Campinas (SP), and to the "Luiz de Queiroz" College of Agriculture of the University of São Paulo (Esalq/USP), in Piracicaba (SP), two of the institutions that are part of Semear Digital alongside the Center for Research and Development in Telecommunications (CPQD). Institute of Agricultural Economics (IEA), National Institute of Telecommunications (Inatel) and Federal University of Lavras (UFLA).

At the IAC, in a conference with other researchers, University of Florida professor emeritus Fedro Zazueta spoke about agriculture in the context of the fourth industrial revolution and the role of technologies such as the internet of things (IoT), artificial intelligence, and big data in reducing uncertainties and supporting decision-making. He pointed out that, in this process, infrastructure alone is not enough, and that a skilled workforce is needed, in addition to the creation of an ecosystem and a culture that stimulates innovation.



NASA scientist Douglas Morton, a specialist in environmental and agricultural remote sensing, addressed the integration of diverse data to improve the monitoring of rural properties and user-focused technologies. He cited the HLS project, an initiative that combines data from the Landsat and Sentinel satellites and generates time series every two or three days with high potential to monitor the management and conditions of agricultural crops. These images have been used by Semear Digital researchers, especially for the mapping of coffee management systems in Caconde (SP) and pastures in Guia Lopes da Laguna (MS), under the coordination of researcher Édson Bolfe. This data integration, according to Morton, can even improve projections of the impact of climate.

At Esalq/USP, the Committee was welcomed by the institution's director, Thais Vieira, and by the coordinator of the Center for Sustainable Tropical Agriculture, Durval Dourado Neto, who is also

chief scientist at the Digital Sowing Center. During the visit, the coordinator of the university's Precision Agriculture Laboratory, José Paulo Molin, spoke about the use of precision agriculture in small farms and the challenges for automatic data collection. He collaborates in the activities carried out at the DAT in Jacupiranga (SP), where the focus of the work is on banana and peach palm crops.

The postdoctoral fellow linked to the Antônio José Homsí Goulart Center also presented research initiatives aimed at the use of deep learning techniques in the mapping of Crop-Livestock-Forest Integration Systems (ICLFS), an activity developed at the DAT of Guia Lopes da Laguna (MS).

The visit to Esalq's laboratories and advanced research centers was followed by a new conference with the scientists of the International Committee. Ermias Kebreab, a world reference in the area of Veterinary Sciences, presented an overview of innovative and multifaceted strategies for mitigating methane emissions in livestock, such as the use of feed additives and microbial engineering. Mihai Datcu, an expert in the field of data science, from the German Aerospace Center, spoke about the use of artificial intelligence for earth observation and the challenges for new models and scales of remote monitoring of the impacts of human activities.

DAT Caconde

One of the first pilots of the Agrotechnological District (DAT), Caconde (SP) also received a visit from the International Committee of Digital Sowing. The project has been developing activities such as the mapping of coffee production systems in the municipality from satellite data, training in digital technologies, which also include fish farming activity, and research in precision agriculture.

Characterized by the presence of small and medium-sized coffee growers, the municipality saw the reality transform from 2019 onwards with the expansion of connectivity in the rural area, where

most of its 2 thousand rural producers live. According to Ademar Pereira, president of the Agricultural Cooperative of Caconde and Region (Coopac), today there are more than 70 antennas installed and about 1,350 internet subscriptions. Connectivity was reflected in the daily life of the community and, according to him, the presence of the Semear Digital project has also been attracting other public and private initiatives.



This year, the local rural union, alongside the Brazilian Coffee Industry Association (ABIC) and Sebrae-SP, inaugurated the Environmental Education Center (CEAC), where the project will work through training and workshops for technology transfer. The International Committee visited the CEAC headquarters, which has space for hydroponics, a nursery for native tree seedlings and a cafeteria-school, with a collective roaster and a coffee tasting room.

The group also visited properties that are part of Semear Digital and saw the use of services currently available in the region, such as the local company that operates in the application of biological inputs via drone.

In the field, on a day with high temperatures, they also witnessed one of the main concerns of farmers: the effects of weather extremes, such as drought, on coffee production. For Professor Zazueta, the development of digital technologies for small and medium-sized businesses should also consider solutions to address these impacts of climate change in the long term.

For Douglas Morton, Caconde is an example of the potential of the local community when combined with technology. He evaluates that the arrival of the internet has allowed a great advance, accelerating the connections between properties, an important point in the exchange of information and generation of new ideas, resulting in a more robust performance. "What we saw was super impressive because the results of the project are visible," he said.

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ASABE Standards

Adoption of ISO Grain Auger Standard

ST JOSEPH, MICHIGAN Oct. 15, 2024.

The American Society of Agricultural and Biological Engineers (ASABE) has replaced ASAE S361.3 APR1990 (R2020), Safety for Portable Agricultural Auger Conveying Equipment, with an adoption with deviations of ISO 4254-16:2018, Agricultural machinery - Safety - Part 16: Portable agricultural grain augers. ASAE S361.3 was used as a basis for ISO 4254-16.

The deviation within the adoption replaced normative reference ISO 16154, Tractors and machinery for agriculture and forestry — Installation of lighting, light signalling and marking devices for travel on public roadways, with US DOT Regulation 49CFR Part 562 reference, ANSI/ASAE S279, Lighting and Marking of Agricultural Equipment on Highways.

This adoption further harmonizes national and international standardization, a goal that facilitates manufacturing, safety advancements, and product marketing worldwide.

ASABE members with standards access and those with site-license privileges can access the full-text via electronic download on the ASABE online Technical Library at elibrary.asabe.org/. Others can obtain a download for a fee directly from the library or by contacting ASABE headquarters at OrderStandard@asabe.org.

ASABE is recognized worldwide as a standards-developing organization for food, agricultural, and biological systems, with more than 280 standards currently in publication. Conformance to ASABE standards is voluntary, except where required by state, provincial, or other governmental

requirements, and the documents are developed by consensus in accordance with procedures approved by the American National Standards Institute. For information on this or any other ASABE standard, contact Scott Cedarquist at 269-932-7031, cedarq@asabe.org. A current listing of all ASABE standards projects can be found on the ASABE web site at www.asabe.org/projects.

ISO Standard for Machinery Label Standards

ST JOSEPH, MICHIGAN Oct. 15, 2024.

The American Society of Agricultural and Biological Engineers (ASABE) has adopted the latest version of an ISO standard for safety signs, replacing the U.S. national standard of the same scope and purpose.

The new national standard, ASABE/ISO 11684:2023, Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety labels — General principles, establishes general principles for the design of safety labels and hazard pictorials of tractors, machinery for agriculture and forestry, and powered lawn and garden equipment. It also outlines safety label objectives, describes the basic safety label formats and colors, provides guidance on developing the various panels that together constitute a safety label, and includes safety label information with regard to operator's manuals.

The new national standard replaces ANSI/ASABE AD11684:1995 APR2011 (R2021), which contained requirements that were included in a recent revision of the ISO standard, led by Canada. That revision paved the way for its adoption by ASABE as a national standard.

This adoption continues to further harmonize national and international standardization, a goal that facilitates manufacturing, safety advancements, and product marketing worldwide.

ASABE members with standards access and those with site-license privileges can access the full-text via electronic download on the ASABE online Technical Library at elibrary.asabe.org/. Others can obtain a download for a fee directly from the library or by contacting ASABE headquarters at OrderStandard@asabe.org.

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ASABE is an international scientific and educational organization dedicated to the advancement of engineering applicable to agricultural, food, and biological systems. Further information on the Society can be obtained by contacting ASABE at (269) 429-0300, emailing hq@asabe.org or visiting www.asabe.org/.

Invitation to Biosystems Engineering 2025

Dear Friends and Colleagues,

On behalf of the Organizing Committee, I am happy to invite you to participate at the upcoming international conference “Biosystems Engineering 2025”. This is already 15th conference organized by Estonian University of Life Sciences that will be held at Institute of Forestry and Engineering on May 7 – 9, 2025 in Tartu, Estonia.

The Conference will focus on the new technologies and scientific research in the areas of agriculture, agrorobotics, energy applications, biorefining, fuels and vehicles, bioeconomy, food, engineering, waste recovery, and respective education. This is a possibility to provide technology transfer from scientists to enterprises and exchange information with specialists in your area of research from different European countries. The Conference on Biosystems Engineering has grown yearly both in size and respectability. Next year we expect to host leading scientists of at least 30 countries. For more information, please visit the webpage of the Conference, BSE 2025 (<https://bse.emu.ee>).

The deadline for abstract submission is December 1st 2024. For the submission of abstract please follow the instructions at our homepage at <https://bse.emu.ee/call-for-abstracts/>. Authors of approved abstracts will be offered an opportunity to submit also a full-size paper. All papers that are received in time from participants and are accepted by reviewers will be published in special issues of: Agronomy Research (<https://agronomy.emu.ee>) Energies (<https://www.mdpi.com/journal/energies>)

Considering the high level of scientific research that is done at Your University in particular, we are confident that Your presentation will be a major event in our program.

In closing, we would be pleased and honoured if you would participate at the Biosystems Engineering 2025 Conference.

We sincerely hope that you will join us in making BSE 2025 a success. We look forward to

welcoming you to Estonia, to Tartu and to BSE 2025.

PS. Please do not hesitate to share this information with your colleagues!

On behalf of the Organizing Committee of BSE 2025, Sincerely Yours,

Prof. Dr. Timo Kikas
Institute of Forestry and Engineering
Estonian University of Life Sciences
e-mail: timo.kikas@emu.ee

Invitation to the 10th International College Students Intelligent Agricultural Equipment Innovation Competition

<http://uiaec.ujs.edu.cn/>

To all Universities, Colleges, and Institutes:

The International College Students Intelligent Agricultural Equipment Innovation Competition (Hereinafter referred to as the "competition") aims to cultivate students' innovative spirit and practical ability, stimulate innovation and entrepreneurship inspiration, and promote the cultivation of innovative and entrepreneurial talents in the field of agricultural equipment engineering and international exchange and cooperation for students majoring in agricultural engineering. The competition has become extremely influential in the field of agricultural equipment engineering and has achieved remarkable results in cultivating students' innovation and entrepreneurship ability and comprehensive quality. According to the regulations, the 10th competition will be held now. Now relevant matters are hereby notified as follows:

Purpose of the competition

With the theme of "Develop new quality productive forces of agricultural equipment, facilitate high-quality agricultural development", the competition aims to cultivate modern agricultural equipment innovation and entrepreneurship talents with "strong professional knowledge and hands-on ability, as well as excellent innovation and entrepreneurship ability" urgently needed by the industry, and creates a comprehensive international education platform,

contributing to the innovative development of modern agricultural equipment industry.

Organization

The competition sets up leading organizations and working organizations. The leading organization consists of the Competition steering Committee and the Competition Committee (Annex 1), which has a secretariat (affiliated to Jiangsu University). The working organizations include the working group of the competition organizer and the competition evaluation expert group.

Organizers

The 10th International College Students Intelligent Agricultural Equipment Innovation Competition is organized by the following collaborating institutions:

Co-hosts:

International Commission of Agricultural and Biosystems Engineering (CIGR)

Chinese Society of Agricultural Machinery (CSAM),

Chinese Society of Agricultural Engineering (CSAE),

Jiangsu Province and Education Ministry Co-Sponsored Synergistic Innovation Center of Modern Agricultural Equipment (SIAE)

International University Consortium for Agricultural Engineering (IUCAE).

Organizer:

Qingdao Agricultural University.

Co-organizer:

China Agricultural Machinery Distribution Association (CAMDA)

Competition Requirements

Participant requirements and Limit number of works for each participant:

(1) Participant requirements

Participant must be formally registered before September 2024 (including September) in the full-time non-adult of higher education institutions and vocational colleges, including junior college students, undergraduates, full-time and part-time (full-time study) graduate students. Participants may apply in teams of two to five members. It is mainly for overseas students and can be mixed with domestic students to form a team, requiring overseas students to be the leader and the number of overseas students is half or more of the team.

(2) Limit number of works

Class A and D works are limited to one entry for each participant.

Entry categories:

The works are divided into two classes: A and D.

Class A: Scientific or Technological Inventions in Intelligent Agricultural Equipment

- A1: Invention of intelligent tillage equipment,
- A2: Invention of intelligent planting equipment,
- A3: Invention of intelligent field management equipment,
- A4: Invention of intelligent water-saving irrigation equipment,
- A5: Invention of intelligent harvesting agricultural equipment,
- A6: Invention of intelligent farm products origin processing equipment.
- A7: Basic parts (hydraulic parts, transmission system, sensors, electric drive, navigation system, etc.)
- A8: Other intelligent agricultural equipment.

The author with the highest academic degree serves as the team leader, and the teams are divided into Undergraduate Group and Graduate (Master's and

Doctoral) Group based on the leader's educational background.

Class D: Conceptual Design

The works refer to future-oriented intelligent agricultural machinery and intelligent agriculture, and have advanced awareness or subversive intelligent agricultural equipment creative design, or intelligent agricultural equipment machine modeling design.

The author with the highest academic degree serves as the team leader, and the teams are divided into Undergraduate Group and Graduate (Master's and Doctoral) Group based on the leader's educational background.

Special statement

To avoid the requirement of 5 (1) that A works must have a prototype or a real model, some participant used the A works to apply for D works. To avoid above phenomenon, we give the following statements:

- (1) D works must be subversive creative design or industrial design. In the process of formal examination, the work will be one-vote veto by the secretariat when it does not belong to this connotation.
- (2) All recommended departments should strictly check the connotation of class D works. Once find out the works that belong to the connotation of class A are recommended to apply for class D, the eligibility for application of the next year class D works will be stopped.

Declaration for quantity

- (1) The number of works submitted by universities (colleges and institutes) shall be no more than 20 for class A+D.
- (2) The number of works submitted by higher vocational college shall be no more than 8 for class A+D.

Supervisor

Each supervisor is limited to 2 A and D works and responsible for the originality and authenticity of the works, and each work is limited to 1~3 supervisors.

Requirements for works

- (1) The works should be the prototype, physical model, software, virtual concept and other achievements independently developed and designed by the student team. The papers and patents involved must be the results of the last two years (September 2022 to September 2024). Works must have a prototype or physical model; Category D: Concept video (MP4, 720P, 200M or less).
- (2) The results that have been awarded by national competitions shall not be used for declaration.
- (3) It is not allowed to apply directly with the achievements of the tutor.
- (4) Do not plagiarize any achievement declaration that does not belong to me.
- (5) The core content of the works shall not be the same or repeated with the previous nine works.
- (6) It is forbidden to use intellectual property rights (such as patents, papers, etc.) without the signature of the participating students.

For violation of competition results, falsification of works, the competition commission after check will be on the official website or the relevant conference within the scope of present colleges during the event list, participating college, teachers and students, at the same time disqualified from winning works, outstanding teachers qualification and qualification of "challenge cup" of colleges and universities; If the situation is serious, relevant personnel will be held responsible according to the rules of the competition.

Registration

Table 1 Competition Schedule

Content	Time schedule
Registration	November 1, 2024 - March 1, 2025
Work application	March 1, 2025 - March 15, 2025
Final	Expected to be in mid-early May 2025

Competition registration

All colleges and universities shall fully publicize and launch the competition, and the participating units shall fill in the Competition Application Form (Annex 2). Please send all the attachments (Annex 2, PDF and Excel format) to znnzds2025@163.com before March 1, 2025.

Work application

(1) Submitted time of Summary List of Works
For class A and D, please send the Summary List of Works (Annex 3) with official seal to znnzds2025@163.com in the format of PDF and Excel before March 15, 2025.

(2) Submission time of R&D (design) report and attachments

The application form for Class A ,R&D report and attachment (PDF format, within 5M), and the application form for Class D, design report and concept video (within 720P, 200M) should be send to znnzds2025@163.com before March 15, 2025.

(3) Special reminder

The key information of the works, such as the name of the works, the team members and the supervisors, should be subject to the summary list of the sealed version submitted by each university. In principle, it should not be modified later.

Final, Exhibition and Rewards (Expected in May, 2025)

With each participating college or university as a unit, please follow the final competition notification to send the electronic version of the work submission form to the organizer's email address. Additionally, please send the electronic version of the exhibition board design (in JPG format, the design size of the exhibition board is 0.9m ×1.2m, and the pixel is 72dpi) to the competition email address.

During the final competition, AD works will undergo on-site questioning and defense, and participating teams must bring their self-developed prototypes, physical models, and concept videos to the venue for display.

For AD works that are particularly large in size or weight and difficult to carry or transport, participants may apply to present via live video connection after obtaining approval from the competition organizing committee. Pre-recorded videos are not allowed for presentations. Failure to present on-site or via live video connection will

result in the inability to win first, second, or special prizes.

Award Types

Student awards: There are top prizes (may be declared vacant), first prizes, second prizes and excellence prizes. During the competition, the judges will determine the number of prizes based on the entire number and quality of the works.

University "Cup" award: The competition will award a certain number of "Cup" awards to the participating universities. It will be according to the total score of the winning works, from high to low score. The special prize, first prize, second prize and excellence prize are calculated according to 100 points, 70 points, 40 points and 10 points, respectively.

Outstanding supervisor award: The competition will award the "Outstanding Supervisor Award" to the supervisors of the top prize works.

Other Matters

Please visit the following websites to keep updated:
The official website of the competition (<http://uiaec.ujs.edu.cn/>).
Official website of the Qingdao Agricultural University (<https://www.qau.edu.cn>).

Contact information:

Li Laoshi, Qingdao Agricultural University; Tel: 086-0532-58957291;
Huang Laoshi, Qingdao Agricultural University; Tel: 086-18610292992;
Hou Laoshi, Jiangsu University; Tel: 2011@ujs.edu.cn;

Contact information:

Form review competition exchange: competition student exchange QQ group number: 478055828 and 651011638;
National team leader QQ group number: 317350488;
Teacher exchange QQ group number: 485597471.
Other related information of the competition will later be released on the official website (<http://uiaec.ujs.edu.cn/>). There you will find detailed application forms and evaluation rules and other related materials.
10th International College Students Intelligent Agricultural Equipment Innovation Competition Committee
November 1, 2024

Upcoming Conferences

Biosystems Engineering 2025, May 2025, Tartu, Estonia



Biosystems Engineering 2025

The Biosystems Engineering conference is organized by Estonian University of Life Sciences. It aims to become the leading annual conference in Baltic region in fields related to traditional and modern engineering techniques and technical solutions applied to biological systems. The goal of BSE 2025 is to gather scholars from all over the world to present advances in the fields of biosystems engineering and to foster an environment conducive to exchanging ideas and information. This conference will also provide an ideal environment to develop new collaborations and meet experts on the fundamentals, applications, and products of the mentioned fields.

[Biosystems Engineering](#)

15th European Conference on Precision Agriculture, June 29th-July 3rd, Barcelona, Spain



CSBW/ASABE International Annual Meeting, July 7-16, Toronto, Canada



#ASABE25 takes us to Toronto, Canada for the decennial [CSBE/ASABE](#) joint AIM!

Registration and the Call for Abstracts are open! Find all the details at www.asabemeetings.org

XIII Congresso Ibérico de AgroEngenharia, 21-23 July, 2025



[Início - AgroIng 2025 - XIII Congresso Ibérico de AgroEngenharia](#)

CIGR2026: CIGR World Congress, June 2026

During the CIGR International Conference in Jeju Island, Republic of Korea, Patrizia Busato, Chair of the 2026 CIGR World Congress Invited the participants to attend the CIGR World Congress to be held in June 2026, In Torino, Italy.



CIGR 2028: International Conference, 3-6 October 2028, New Delhi, India

The Indian Society of Agricultural Engineering (ISAE) was selected by the 2024 CIGR Executive Board as the organizer for 2028 CIGR International Conference. The venue of the conference will be in New Delhi, India.



The poster features the CIGR logo (a globe with 'CIGR' letters) and the text 'CIGR International Commission of Agricultural & Biosystems Engineering'. Below it is the ISAE logo (a gear with 'ISAE' text) and 'Indian Society of Agricultural Engineers'. The ICAR logo (a green plant) and 'Indian Council of Agricultural Research' are also present. A date banner reads '3rd - 6th Oct 2028 New Delhi, India'. The main title 'CIGR International Congress 2028' is displayed in large red font. The background shows a drone over a field, a tractor, and a leaf icon within a hexagonal pattern. A QR code is located in the bottom left corner.

**CIGR International
Commission of Agricultural &
Biosystems Engineering**

**Indian Society of
Agricultural Engineers**

**Indian Council of
Agricultural Research**

**3rd - 6th Oct 2028
New Delhi, India**

**CIGR International
Congress 2028**

QR Code