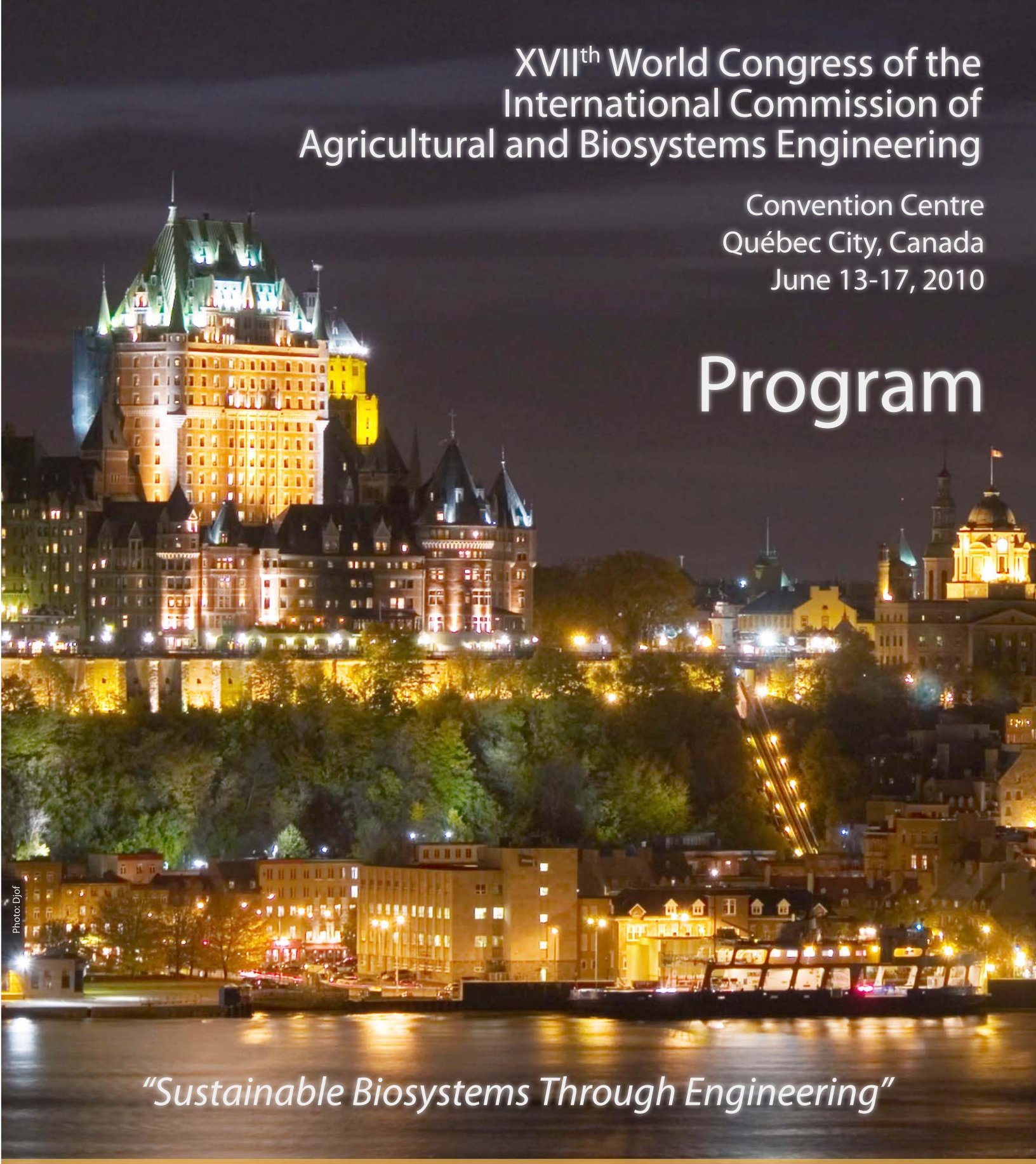
XVIIth World Congress of the International Commission of Agricultural and Biosystems Engineering

Convention Centre
Québec City, Canada
June 13-17, 2010

Program



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"Sustainable Biosystems Through Engineering"

CIGR 1930

CSBE | SCGAB

ASABE

American Ecological Engineering Society

INFITA

Nano Bio Eng 2010

AGPA

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General Information

Congress Venue

The XVIIth World Congress of the International Commission of Agricultural and Biosystems Engineering is held in Québec City, Canada on June 13 to 17, 2010 at the **Québec City Convention Centre**.

Québec City Convention Centre
900, Honoré-Mercier Avenue, 2nd floor
1000, East René-Lévesque Blvd (other entrance)
Québec (Québec), Canada, G1R 2B5
Phone: 418 644-4000 / toll free 1 888 679-4000
Fax: 418 644-6455
www.convention.qc.ca

Pre-congress Workshops and Meetings are held at the
Hilton Hotel
1100, East René-Lévesque Blvd.
Québec (Québec), Canada, G1R 4P3
Phone 418 647-2411 / toll free 1 800 447-2411
www.hiltonquebec.com

For **Québec City and area touristic information**, visit www.quebecregion.com.

Registration

The registration desk is located in the HALL 2000, at the Convention Centre main entrance (Honoré-Mercier Avenue). Registration desk hours are:

Sunday, June 13	13:00 to 18:00
Monday, June 14	7:00 to 18:00
Tuesday, June 15	7:00 to 18:00
Wednesday, June 16	7:00 to 16:00

Visit the registration desk for any questions or comments during the event.

Congress Language

The official language for the Congress is English. The Organizing Committee members are fluent in English and in French as well.

Identification

Delegates are required to wear their badge at all times. Badges are important to identify delegates and to give access to technical sessions, authorized meal functions and social activities. Tickets may be required for specific activities.

Electronic Devices

Delegates are invited to turn off or silence all electronic devices during workshops, meetings, ceremonies, plenary sessions and technical sessions.

Internet Access during the Congress

All delegates will have access to an internet café with six computers set up in the poster hall at the Convention Centre (2000D). Delegates with their own computer may access the free internet zone at the Convention Centre located at the entrance near the registration desk (Hall 2000). The free internet zone is limited to 8 computers simultaneously for a period of 20 minutes each. When registering at their hotels, delegates should ask availability and cost of internet access in their rooms; some hotels include internet without extra charge while others require an extra fee (about 12 CAD per day).

List of Authors, Abstracts and Full Papers

The list of authors in this booklet has been shortened in some cases for reasons of space. The full list of authors can be found in a separate book of abstracts distributed to delegates. Full papers that were submitted by authors will be available on the CSBE/SCGAB web site after the Congress. For updates on paper availability and downloading, visit: www.bioeng.ca

Hosts and Organizing Committee

CIGR

CIGR was founded in 1930 in Belgium as a non-governmental, non-profit professional organization. The International Commission of Agricultural and Biosystems Engineering (CIGR) is a world-wide federation regrouping - in form of a networking system - national, regional and multinational associations, societies, corporations and individuals working in science and technology applied to the different fields of agricultural engineering.
www.cigr.org

CSBE/SCGAB

The Canadian Society for Bioengineering / Société canadienne de génie agroalimentaire et de bioingénierie (CSBE/SCGAB) is an educational and scientific organization dedicated to the advancement of engineering applicable to agricultural, food, and biological systems. The Society was founded in 1958 in Wolfville, Nova Scotia.
www.bioeng.ca

Organizing Committee

Chair of the local organizing committee
Dr. Stéphane Godbout, ing., agr.
The Research and Development Institute for the Agri-Environment (IRDA), Canada
stephane.godbout@irda.qc.ca

Chair of the scientific program committee
Dr. Philippe Savoie, ing., agr.
Agriculture and Agri-Food Canada
philippe.savoie@agr.gc.ca
418-657-7985 ext.5166

Damien de Halleux, Université Laval, Canada
Robert Lagacé, Université Laval, Canada
Stéphane P. Lemay, Research and Development Institute for the Agri-Environment (IRDA), Canada
René Morissette, Agriculture and Agri-Food Canada,
Lise Potvin, Research and Development Institute for the Agri-Environment (IRDA), Canada
Cristina Ratti, Université Laval, Canada
Roger Thériault, Université Laval, Canada
Joey Villeneuve, Agriculture and Agri-Food Canada

CIGR Section Chairs and Scientific Committee Coordinators

CIGR Section I: Land and Water Engineering (Chair: **Jose M. Tarjuelo** [Spain]); Coordinator: **Guanhua Huang** (China)

CIGR Section II: Farm Buildings, Equipment, Structures and Environment (Chair: **Daniel Berckmans** [Belgium]); Coordinators: **Hisamitsu Takai** (Denmark) and **Stéphane P. Lemay** (Canada)

CIGR Section II-B: Aquacultural Engineering; Coordinators: **Eiko Thiessen** (Germany) and **Ed Aneshansley** (USA)

CIGR Section III: Equipment Engineering for Plants (Chair: **John K. Schueller** [USA]); Coordinator; **Bernard Panneton** (Canada)

CIGR Section IV: Energy in Agriculture (Chair: **Mikio Umeda** [Japan]); Coordinator: **Philippe Savoie** (Canada)

CIGR Section V: Management, Ergonomics and Systems Engineering (Chair: **Pietro Piccarolo** [Italy]); Coordinator: **Remigio Berruto** (Italy)

CIGR Section VI: Postharvest Technology and Process Engineering (Chair: **Jozef Grochowicz** [Poland]); Coordinator: **Cristina Ratti** (Canada)

CIGR Section VII: Information Systems (Chair and Coordinator: **Antonio Saraiva** [Brazil])

INFITA and 8th World Congress on Computers in Agriculture jointly organized with CIGR Section VII; Coordinator **Fedro Zazueta** (USA)

ASABE's 9th International Drainage Symposium; Coordinators: **Ali Madani** (Canada), **Chip Chescheir** (USA) and **Gary Sands** (USA)

American Ecological Engineering Society 10th Annual Meeting (President: **Cully Hession** [USA]): Coordinator: **Stacy Hutchinson** (USA)

Symposium on Nanotechnologies Applied to Biosystems Engineering and the Environment; Coordinator: **Khaled Belkacemi** (Canada)

Participating Groups

CIGR SECTIONS

Section I: Land and Water Engineering
Section II: Farm Buildings, Equipment, Structures and Environment
Section III: Equipment Engineering for Plants
Section IV: Energy in Agriculture
Section V: Management, Ergonomics and Systems Engineering
Section VI: Postharvest Technology and Process Engineering
Section VII: Information Systems

SPECIAL CONFERENCES

ASABE'S 9th International Drainage Symposium

The American Society of Agricultural and Biological Engineers (ASABE) has organized eight previous drainage symposia. The 9th IDS is held jointly with CIGR and CSBE/SCGAB. The symposium will present emerging drainage research and new solutions to address water quality and watershed management.

8th World Congress on Computers in Agriculture

Various groups involved in computers in agriculture have developed a yearly WCCA. The International Network for Information Technologies in Agriculture (INFITA) is responsible for the 2010 WCCA and agreed to join with CIGR and CSBE/SCGAB in Québec. The WCCA has worked together with CIGR Section VII (Information Systems) to offer a joint technical program.

10th Annual Meeting of AEES

The American Ecological Engineering Society will hold its 10th Annual Meeting in Québec City in conjunction with CIGR 2010. It has developed its own technical sessions and co-sponsors some sessions with other groups.

Symposium on Nanotechnologies Applied to Biosystems Engineering and the Environment

The Symposium will focus on nanotechnologies applied to biosystems engineering and environmental systems, in three major areas: agriculture, the food industry and the environment. Selected papers will be peer-reviewed for a special issue of the Canadian Journal of Chemical Engineering.

Génie des procédés appliqué en agro-alimentaire

Génie des procédés appliqué en agro-alimentaire GP3A est un groupe de chercheurs, ingénieurs et praticiens francophones en agro-alimentaire. Une assemblée technique en français est prévue les 17 et 18 juin 2010 en marge du Congrès CIGR.
GP3A is a group of French-speaking specialists in food processing. They are planning a workshop in French on June 17-18 just after the CIGR World Congress.

Welcome Announcements

Bonjour et bienvenue à Québec!

Le comité organisateur est heureux d'accueillir des délégués de plus de 50 pays à l'occasion du 17e congrès mondial de la Commission internationale du génie rural (CIGR). Les participants auront l'occasion d'avoir de nombreux échanges scientifiques avec plus de 700 communications au programme. Nous espérons que vous aurez aussi le temps de découvrir certains attraits de la ville de Québec et des environs. Nous vous souhaitons un agréable séjour à Québec.

Le comité local organisateur

Welcome to Québec!

The organizing committee is delighted to welcome delegates from more than 50 different countries to the XVIIth World Congress of CIGR. More than 700 technical presentations will provide an opportunity for numerous stimulating exchanges. We hope that you will also have time to discover some of the fascinating attractions in Québec and surrounding areas. We wish you all an enjoyable journey in Québec.

The local organizing committee

Welcome from CSBE/SCGAB

The Canadian Society for Bioengineering (CSBE/SCGAB) is honoured to greet delegates from around the world. It is thankful to CIGR for allowing Canada to host its XVIIth World Congress and 80th anniversary celebrations. Canada is composed of a diversity of people, wide landscapes and a spirit of innovation. Try to extend your stay in Québec and Canada. This will certainly be a memorable conference for all of us.

Dennis Hodgkinson
President of CSBE/SCGAB

Welcome from CIGR

The International Commission of Agricultural and Biosystems Engineering (CIGR) is thankful to the Canadian Society for Bioengineering for organizing the XVIIth World Congress. Each of the seven technical sections of CIGR has developed an excellent technical program with many offered papers during the Congress. This is an excellent way to celebrate CIGR's 80th anniversary and build a strong international network of professionals in agricultural and biosystems engineering.

Søren Pedersen
President of CIGR

Meetings

Meetings locations:
H: Hilton Hotel (1100, East René-Lévesque Blvd., Québec, Canada)
CC: Québec City Convention Centre (900 Honoré-Mercier avenue, Québec)

American Ecological Engineering Society

	Time	Location; Room
Tuesday, June 15		
AEES Annual General Assembly and Members' Luncheon	12:00 – 13:30	CC; 206B

Association des Ingénieurs en Agroalimentaire du Québec

Wednesday, June 16		
AIAQ Annual General Assembly	17:00 – 19:00	CC; 2102B

Canadian Society for Bioengineering

Sunday, June 13		
"Old" (2009-2010) CSBE/SCGAB Council meeting	13:00 – 17:00	H; Lauzon
Monday, June 14		
CSBE/SCGAB Annual General Assembly and Members' Luncheon	12:00 – 13:30	CC; 206B
Wednesday, June 16		
"New" (2010-2011) CSBE/SCGAB Council Meeting	7:00 – 8:30	CC; 206B

CIGR Meetings

Saturday, June 12		
CIGR Presidium Meeting	8:30 – 14:00	H; Orléans
CIGR Executive Board Meeting	14:30 – 17:00	H; Beauport (2nd floor)
Animal Housing in Hot Climate Working Group	18:30 – 21:00	H; Beauport (2nd floor)
Rural Development and the Preservation of Cultural Heritage Working Group	18:30 – 21:00	H; Dufferin
Cattle Housing Working Group	18:30 – 21:00	H; Orléans
Agricultural Engineering University Curricula Harmonization Working Group	18:30 – 21:00	H; Sillery
Image Analysis for Agricultural Processes and Products Working Group	18:30 – 21:00	H; Duchesnay
Food Safety Working Group	18:30 – 21:00	H; Lauzon
Sunday, June 13		
Technical Board meeting	9:00 – 12:00	H; Beauport (2nd floor)
Section I Board meeting	13:00 – 17:00	H; Sillery
Section II Board meeting	13:00 – 17:00	H; Beauport (2nd floor)
Section III Board meeting	13:00 – 17:00	H; Villeray
Section IV Board meeting	13:00 – 17:00	H; Porte St-Louis
Section V Board meeting	13:00 – 17:00	H; Orléans
Section VI Board meeting	13:00 – 17:00	H; Salon Hilton
Section VII Board meeting	13:00 – 17:00	H; Duchesnay
Water Management and Information System Working Group	17:00 – 19:00	H; Sillery
Tuesday, June 15		
CIGR General Assembly	16:30 – 17:30	CC; 2000C
CIGR 80th Anniversary and Awards Ceremony	17:30 – 18:30	CC; 2000C
Wednesday, June 16		
CIGR EJournal Governance Committee	17:00 – 19:00	CC, 202

Drainage Working Group and International Drainage Symposium

Wednesday, June 16		
NCERA 217 Members Working Group	7:00 – 10:00	CC; 202
ASABE's International Drainage Symposium Recognition Luncheon	12:00 – 13:30	CC; 206B

Meetings and Workshops

INFITA and World Congress on Computer in Agriculture	Time	Location; Room
Wednesday, June 16		
INFITA and WCCA Board Meeting	7:00 – 8:00	CC; 206B

Canada – Spain Round Table

Tuesday, June 15	7:00 – 10:00	CC; TBC

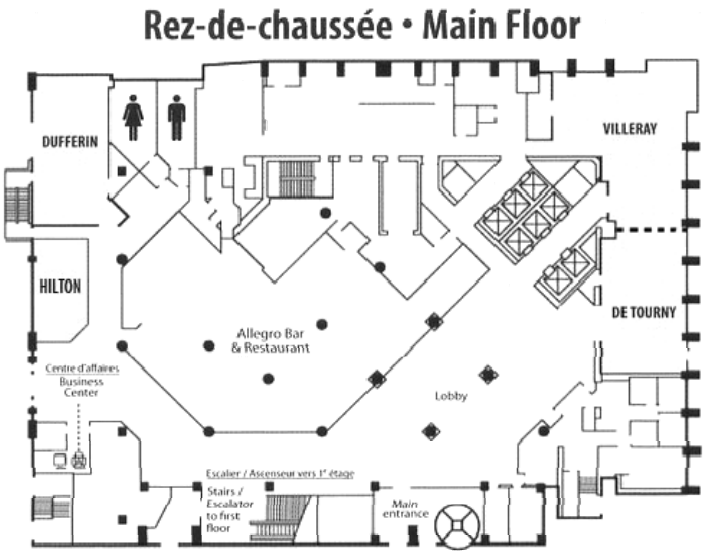
Workshops

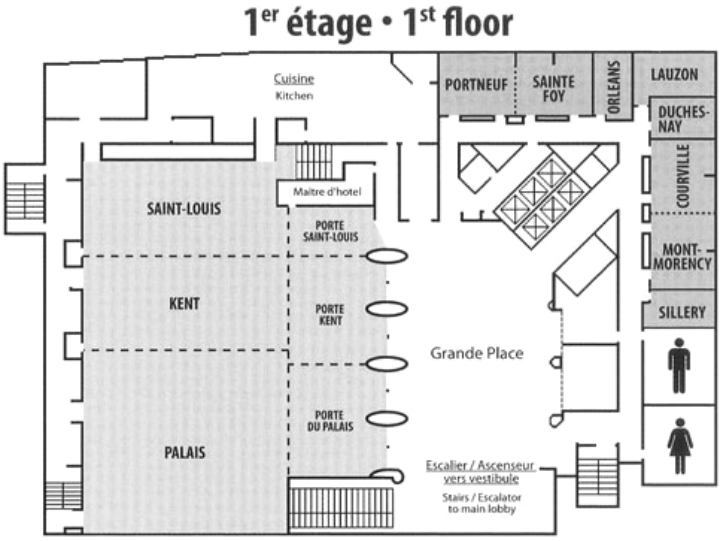
Workshops location:
H: Hilton Hotel (1100, East René-Lévesque Blvd., Québec, Canada)

DRAINMOD

Saturday, June 12		
Introduction	8:00 – 17:00	H; Dufferin
Hydrology of drainage systems, soil, weather, crop, system design, inputs, conventional and controlled drainage, subirrigation		
Each participant is expected to bring his laptop computer		
With **George "Chip" Chescheir**, North Carolina State University		
Sunday, June 13		
Advanced Application	8:00 – 17:00	H; Dufferin
DRAINMOD– NII nitrogen model, wetland applications, salinity model		
With **George "Chip" Chescheir**, North Carolina State University		

HILTON Hotel floor map





Beauport room is located at the 2nd floor of the Hilton hotel.

For the **Convention Centre floor map**, see program back cover.

Ceremonies, Plenary Sessions and Social Activities

Welcome Reception

Time: **Sunday, June 13 – 18:00 to 21:30**
Location: Musée national des beaux-arts du Québec, Parc des Champs-de-Batailles
Shuttle buses: Departure from the Convention Centre between 17:30 and 18:40 every 10 min.
Return between 20:00 and 21:30 every 15 min.
On foot: 20 min walk each way. This activity is included for all delegates registered for the full three-day conference. A Congress name tag is required. Pick yours up at the registration desk on Sunday afternoon.

18:00 Free access to Museum exhibitions
19:00 Welcome announcements by:
CIGR 2010 Local Organizing Committee: **Stéphane Godbout**
Québec City representative: **Michelle Morin-Doyle**
CIGR President: **Søren Pederson**
CSBE/SCGAB President: **Dennis Hodgkinson**

Opening Ceremonies

Time: **Monday, June 14 – 8:15 to 9:50**
Location: Convention Centre, Room 2000C

Welcome announcements by:
CSBE/ SCGAB President: **Dennis Hodgkinson**
CIGR President: **Søren Pederson**
Province of Québec Government representative: **TBC**
Université Laval Principal (Recteur): **Denis Brière**
Message from ASABE
Invited Speaker:

Johanne Gélinas - Sustainable Development and Agriculture: Challenges and Opportunities
Ms. Gélinas is a geographer and holds a Masters in Environmental Sciences. She enjoyed a brilliant career in public service related to the environment and sustainability. She was Canada's Commissioner of the Environment and Sustainable Development from 2000 to 2007. In addition to her present practice at Deloitte, she sits on the Sustainability Advisory Committee of Procter & Gamble, on the Sustainability Star Committee of the Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games, and she is part of the City of Montréal sustainable committee. In 2009, she was awarded the 2009 UQAM recognition award and the 2009 Québec Business Women award in the "Private Enterprise" category for her forward-thinking vision and commitment to sustainable development.

Cruise on the St. Lawrence River

Time: **Monday, June 14 – 19:00 to 22:00**
Location: Chouinard Quay on Dalhousie street, Old Port
Shuttle buses: Departure from the Convention Centre between 17:30 and 18:40 every 10 min.
Return at 22:00 and 22:40
On foot: 25 min walk each way. A buffet will be served on board. This activity is included for all delegates registered for the full three-day conference.

Plenary Sessions

Time: **Tuesday, June 15 – 8:15 to 9:50**
Location: Convention Centre, Room 2000C
Invited Speakers:

Dr. André Musy – Climate Change: A Challenge for the Biosystems Engineers
André Musy is the Executive Director of the Ouranos Consortium on General Climatology and Adaptation to Climate Change since September 2005. He is also Professor Emeritus of the École Polytechnique Fédérale in Lausanne (EPFL), Switzerland, and holder of an honorary doctorate of the Technical University of Construction of Bucarest in Romania. His main field of expertise is hydrology and the management of water resources in the context of sustainable development. He is widely recognized as an international expert.

Ceremonies, Plenary Sessions and Social Activities

The Honorable Stéphane Dion – Green Economy

Born in Québec City, Stéphane Dion holds a B.A. and a M.A. in Political Science from Université Laval (Québec, Canada) and a Doctorate in Sociology from the Institut d'études politiques in Paris, France. He taught Political Science at Université de Montréal from 1984 to 1995. In 1996, he was elected as Federal Member of Parliament for Saint-Laurent-Cartierville. Between 1996 and 2006, he held three ministerial portfolios under Prime Ministers Jean Chrétien and Paul Martin - Intergovernmental Affairs, Official Languages and Environment - and also held the position of President of the Privy Council. His major achievements were the creation of the Forum of Federations, the development and implementation of the Clarity Act and of Canada's Official Languages Strategy, and "saving" the Kyoto Protocol at the United Nations Conference on Climate Change which he chaired in December 2005, in Montréal. In December 2006, he was elected as Leader of the Liberal Party of Canada and became Leader of the Official Opposition, holding these positions until 2008. Today, he holds the Saint-Laurent-Cartierville seat which he has won in every election since 1996.

CIGR 80th Anniversary and Award Ceremony

Time: **Tuesday, June 15 – 17:30 to 18:30**
Location: Convention Centre, Room 2000C
After its General Assembly (16:30 to 17:30) CIGR will recognize deserving members and organisations.

Awards Banquet

Time: **Tuesday, June 15 – 19:00 to 21:30**
Location: Convention Centre, Room 2000AB
This activity is included for non-student delegates registered for the full three-day Congress and guest. It is an optional acitivity for students and daily delegates.

CSBE/SCGAB Awards
Recognition of past CIGR Presidents and Secretaries General
Musical show by the "**Trio Painchaud**"

The siblings of the Painchaud Family entered at the Music Conservatory between 3 and 6 years old. Each has been a soloist with the Québec Symphonic Orchestra. They were all award-winners at the provincial Aramis contest. All of them are multi-instrumentist and developped totally surprising, humourous and innovative musical skills. They revisit popular songs in a very entertaing way.

Closing Ceremonies

Time: **Wednesday, June 16 – 15:35 to 17:00**
Location: Convention Centre, Room 2000C

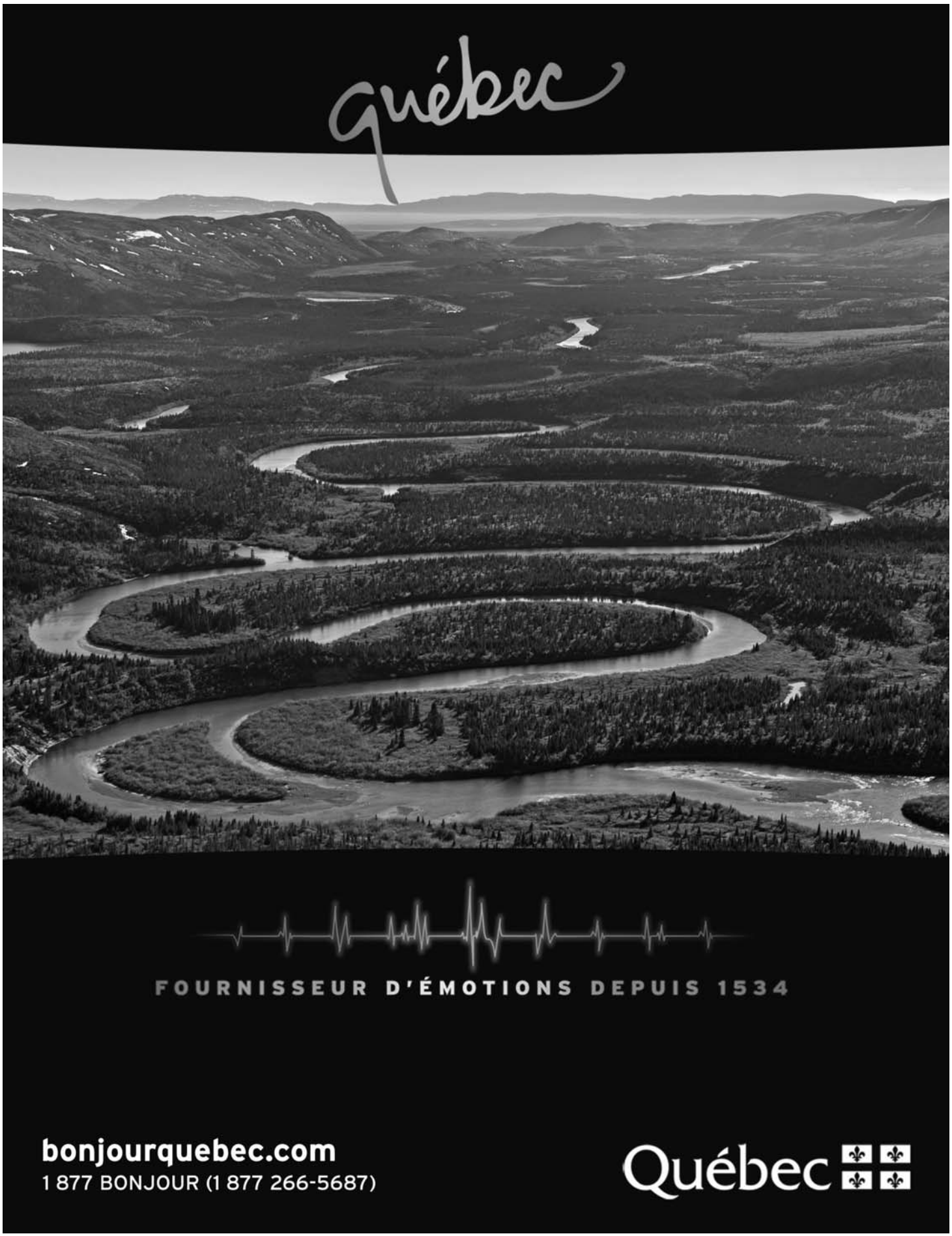
Welcome announcement by **Shiv Prasher** (CSBE President-Elect)
Invited Speakers
Harvey Mead – Have Efforts At Sustainable Development Failed?

Harvey L. Mead's work during more than forty years has focused on integrating environmental concerns in development decisions, in Québec, Canada and abroad. From 1979 to 2006, Mead invested much of his energy in the Québec Union for the Conservation of Nature (which became Nature Québec), adopting the World Conservation Strategy (1980) of the International Union for Conservation of Nature. These efforts contributed to putting sustainable development on the world's agenda. Mead serves two years as Québec's first Sustainable Development Commissioner (2007-2008). A major challenge is to maintain equitable development for all classes of society while reducing humanity's footprint which has been beyond the planet's capacity it for over a quarter-century. This must be done at the same time as attempts are made to bring the majority of humanity out of poverty.

Forthcoming Conferences Announcement

CIGR-AgEng International Conference, July 8-12, 2012, Valencia (Spain). Announcement by **Prof. Florentino Juste**
CIGR XVIIIth World Congress, September 16-19, 2014, Beijing (China). Announcement by **Dr. Li Shujun**
CSBE/SCGAB Annual General Meeting, July 10-13, 2011, Winnipeg (Canada)
International Conference on Concrete in Agriculture, September 18-21, 2011, Québec City (Canada).

Official closing of the Congress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Québec

Oral presentations
Presenters are asked to arrive at the room and upload their presentation at least 15 min before the session opening. Each room is equipped with a laptop (Windows) and projector; no personal laptop will be connected to the projector. Presentation must be compatible with MS PowerPoint. Internet is not available for presentations. All technical sessions are held at the Convention Centre.

Poster presentations
Presenters are required to hang up their poster between 7:00 and 8:15 on the scheduled day and to take it down between 17:30 and 18:30 on the same day. The poster number refers to the assigned panel in room 2000D. At the beginning of the scheduled time of the session, the moderator, authors and others participants will visit each poster successively for 3 to 5 min. Each author is expected to summarize briefly his poster to the group.

Monday, June 14 – 8:15 to 9:50

Opening Plenary Sessions – Details on page 8

Monday, June 14 – 10:15 to 12:00

Monday, June 14 – 10:15 to 12:00

1	AEES	Stream Water and Wetland Interactions (I)
Time	Paper #	Moderator: Greg Jennings (USA) Room: 206A
10:15		Session Opening
10:20	100255	Purlear Creek habitat restoration case study G. Jennings, M. Shaffer, K. Hall et al. (United States)
10:40	101195	Riparian constructed wetlands for improving water quality in a polluted river in southeastern Mexico M.E. Hernández, P. Ruiz-Enzástiga (Mexico)
11:00	101493	Predicting dynamic equilibrium in streams in the Olentangy River Watershed, Ohio, USA J. Witter, A. Ward, J.L. D'Ambrosio (United States)
11:20	101526	Flume analysis of in-channel restoration structures and impacts to secondary circulation flows T. Zhou, T. Endreny (United States)
11:40	101532	Characterizing surface-ground water exchange rates and hydraulic transport processes in a cascading stream T. Endreny, M. Fabian (United States)

Monday, June 14 – 10:15 to 12:00

2	IDS	Drainage and Water Quality
Time	Paper #	Moderator: Ali Madani (Canada) Room: 205C
10:15		Session Opening
10:20	100082	Nitrogen and phosphorus losses in surface runoff water from various cash cropping systems P. Jiao, T. Zhang, D. Xu et al. (China/Canada)
10:40	100130	Drainage on the Delmarva Peninsula: past history and future challenges W. F. Ritter (United States)
11:00	100157	Nitrate-N loads to subsurface drains as affected by drainage intensity and agronomic management practices E. J. Kladivko, L.C. Bowling, V. Poole (United States)
11:20	100224	Effects of drain depth on nitrate-N and phosphorus losses from drained agricultural lands receiving nitrogen and phosphorus from organic sources C.A. Poole , R.W. Skaggs , G.M. Chescheir et al. (USA)

Monday, June 14 – 10:15 to 12:00

3	IDS	Evaluating Drainage Models and Drainpipe Envelopes
Time	Paper #	Moderator: Mohamed Youssef (USA) Room: 204B
10:15		Session Opening
10:20	100175	Measured effect of agricultural drainage water management on hydrology, water quality, and crop yield M. Sunohara, M. A. Youssef , E. Topp, D.R. Lapen (United States/Canada)
10:40	100170	Assessing the feasibility of DRAINMOD application using soil hydraulic properties estimated by pedotransfer functions A. M. Abdelbaki, M. A. Youssef (United States)
11:00	100217	Mathematical modelling on the operation of water control structures in a secondary block F. X. Suryadi, P. H. J. Hollanders, R. H. Susanto (Netherlands/Indonesia)
11:20	100177	Laboratory study of the soil clay percent influence on the need for subsurface drainage system envelopes T. Sohrabi, H. Ojaghloo, H. Rahimi et al. (Iran)
11:40	101667	Machines for wrapping drainage pipes with a defined voluminous synthetic fiber filter W. Hevert (Germany)

Monday, June 14 – 10:15 to 12:00

4	Section I	Irrigation and Crop Response
Time	Paper #	Moderator: Shaoyuan Feng (China) Room: 207
10:15		Session Opening
10:20	100883	Response of spring-maize and soil to saline irrigation in northwest China J. Jiang, S. Feng, Y. Wang (China)
10:40	100561	Investigating the potential for rice production with sprinkler irrigation E. Vories, W. Stevens, P. Tacker et al. (United States)
11:00	101118	Searching for improved irrigation scheduling alternatives for horticultural crops in the humid tropics Y. Chaterlán, M. León, C. Duarte et al. (Cuba/Portugal)
11:20	100292	Safflower (carthamus tinctorius l.) water use from shallow good quality and saline water tables in lysimeteric experiment in a semiarid region of Iran H. Ghamarnia, M. Golamian, S. Sepehri (Iran)
11:40	100254	Deficit irrigation as an agricultural water management system for corn: a review A. A.– A. Aboukeira (United States)

Monday, June 14 – 10:15 to 12:00

5	Section I	Water Management and Soil Properties – POSTERS
Poster #	Paper #	Moderator: Jose Fernando Ortega Alvarez (Spain) Room: 2000D
1	100552	Confined and semi-confined compression curves of highly calcareous soil amended with organic manures N. Aghilinategh, A. Hemmat, M. Sadeghi (Iran)
2	100556	Stress relaxation behaviour of a highly calcareous soil amended with long-term application of three organic manures A. Hemmat, N. Aghilinategh, M. Sadeghi (Iran)
3	100809	Environmental assessment for defining new management strategies for the conservation of soil and water resources R. F. B. Silva, P. I. R. De Morais, A. A. Da Conceição Sartori et al. (Brazil)
4	100968	Effects of the crop root on the soil physic properties and soil water transport environment K. Yuge, M. Anan (Japan)

5	101085	Effects of mechanical aeration on the compaction and permeability of a grassy sward S. Chehaibi, M. Khelifi, K. Abrougui (Tunisia/Canada)
6	101639	Wastewater reclamation and reuse practices for agriculture in Korea E.J. Lee, S.W. Park, C.H. Seong et al. (Republic Of Korea)
7	100759	Farmers mitigation and adaptation options to salinity in Sicily N. Colonna, D. Rapti– Caputo, F. Lupia et al. (Italy)
8	100256	The potential of using a new agricultural system for improving water productivity of wheat A. A.– A. Aboukeira (United States)

Monday, June 14 – 10:15 to 12:00

6 Section II Field Measurements, CFD and Abatement Techniques (I)

Time	Paper #	Moderator: Eileen Fabian Wheeler (USA) Room: 204A
10:15		Session Opening
10:20	100696	Numerical simulation of a pit exhausts system for reduction of ammonia emission from a naturally ventilated cattle building B. Bjerg, M. Andersen (Denmark)
10:40	100762	Measurements of air ventilation rates in naturally ventilated dairy cattle buildings W. Berg, M. Fiedler, A. Kiwan et al. (Germany)
11:00	101059	Gas emission rate from different Japanese open type pig houses with natural ventilation A. Ikeguchi (Japan)
11:20	101131	Measuring concept for determining ammonia emissions from naturally ventilated dairy housing with an outdoor exercise area S. Schrade, M. Keck, K. Zeyer et al. Switzerland/Germany)
11:40	101117	Comparison of ammonia emissions from a naturally ventilated dairy loose housing with solid floor surfaces over two seasons S. Schrade, M. Keck, K. Zeyer et al.(Switzerland/Germany)

Monday, June 14 – 10:15 to 12:00

7 Section II Poultry

Time	Paper #	Moderator: Qiang Zhang (Canada) Room: 205B
10:15		Session Opening
10:20	100320	Application of slightly acidic electrolyzed water for disinfection in a broiler farm X. Hao, B. Li, Y. Ji et al. (China)
10:40	100361	Activity analysis in broiler chickens with different gait scores A. Aydin, O . Cangar , S. E. Ozcan et al. (Belgium)
11:00	101114	Radiant heat distribution in broiler housing using infrared thermometry M.S. Baracho, G.R. Nascimento, I.A. Nääs et al. (Brazil)
11:20	100841	Thermal environment inside broiler housing using distinct lateral membrane structure G. R. Nascimento, M.S. Baracho, I.A. Nääs (Brazil)

Monday, June 14 – 10:15 to 12:00

8 Section III Soil Tillage Equipment and Analysis (I)

Time	Paper #	Moderator: Carol Plouffe (USA) Room: 203
10:15		Session Opening
10:20	100536	Soil failure mode in front of a multiple– tip horizontally-operated penetrometer affected by depth/width ratio of its tip and shank A. Hemmat, A. Khorsandi, V. Shafaie (Iran)
10:40	100613	Soil bin investigations of the effects of tillage tool width on draught and soil disturbance parameters in sandy clay loam soil S.I. Manuwa, O. C. Ademosu, L.A.S. Agbetoye et al. (Nigeria)
11:00	100791	Comparison of cleaning performance for row cleaners on a strip tillage implement R.C. Roberge, T.G. Crowe, M. Roberge (Canada)
11:20	100975	Reducing friction by ultrasonic vibration exemplified by tillage R. Kattenstroth, H.– H. Harms, W. Wurpts et al. (Germany)
11:40	101409	Effect of long term crop rotation and fertilization on moldboard plow draft in a clay– loam soil N.B. Mclaughlin, C.F. Drury, W.D. Reynolds et al. (Canada)

Monday, June 14 – 10:15 to 12:00

9 Section III Precision Agriculture and Monitoring

Time	Paper #	Moderator: Qamar Zaman (Canada) Room: 205A
10:15		Session Opening
10:20	101306	How to integrate multi– sensor data for precision agriculture A. Castrignanò, M.T.F. Wong, D. de Benedetto et al. (Italy/Australia)
10:40	100378	Evaluation of a variable rate liquid fertilizer for site specific application A. Javadi, B. B. Mackvandi (Iran)
11:00	101105	Assessment of real time variable application of nitrogen using remote sensing sensors: perspectives in Slovakia V. Rataj, J. Galambošová, M. Ingeli et al. (Slovakia)
11:20	101007	Comparison of tractor-rotary tiller combination and power tiller in terms of energy expenditure of operators B. Eminoglu, A. Beyaz, O. Orel et al. (Turkey)
11:40	100500	Measurement of dilation of root crops M. Shimazu, Y. Shibata, H. Araki et al. (Japan)

Monday, June 14 – 10:15 to 12:00

10 Section IV Analysis of Biogas Production

Time	Paper #	Moderator: Jay Martin (USA) Room: 2102B
10:15		Session Opening
10:20	100688	Life cycle assessment of agricultural biogas production systems J. Lansche, J. Müller (Germany)
10:40	101095	Anaerobic digestion and related best management practices: Utilizing life cycle assessment M.Z. Venczel, S.E. Powers (United States)
11:00	101515	Positioning anaerobic digestion systems in the swine sector in Québec: A technical and economic study M.-A. Ricard, C.B. Laflamme, C. Charest et al. (Canada/France)
11:20	101132	Biogas production from separated slurry as a slurry management strategy: A consequential life cycle assessment L. Hamelin, M. Wesnæs, H. Wenzel et al. (Denmark)
11:40	101633	Techno-economic assessment of anaerobic digestion systems for agri-food wastes A. Lau, S. Baldwin, M. Wang (Canada)

Monday, June 14 – 10:15 to 12:00

11 Section V Ergonomics and Agriculture – POSTERS

Poster #	Paper #	Moderator: Katja Heitkämper (Switzerland) Room: 2000D
9	100815	"APR System", a new design to increase workers safety in greenhouses maintenance operations A. Carreño, J. Perez, A. Callejon et al. (Spain)
10	101197	Postural analysis and biomechanics of workers in poultry slaughterhouse C. da C.S. Carvalho, C. de F. Souza, I. de F.F. Tinôco et al. (Brazil)
11	101243	The role of the web in the effective detection of serious and fatal tractor overturning accidents D. Pessina, D. Facchinetti (Italy)
12	100994	Approach to heat stress management in the construction industry Mediterranean greenhouses J. Pérez, A. Carreño, A. J. Callejón et al. (Spain)

13	100959	Workload in modern dairy farms-assessment from the user's perspective M. Kauke, F. Korth, P. Savary et al. (Switzerland)
14	100111	Integration of crops, livestock and forestry educational programs in Zona da Mata in Minas Gerais, Brazil R. G. Viana, L. R. Ferreira, R. J. Gomes et al. (Brazil)
15	100750	Problems and criteria for recuperating peripheral urban areas: The case of the Appia-Pignatelli area A.Gusman, A. Marucci, B. Pagniello (Italy)
16	101459	Heritage interpretation and landscape character in the forestry district of Serra San Bruno (Calabria, Italy) S. Di Fazio, L. Laudari, G. Modica (Italy)

Monday, June 14 – 10:15 to 12:00

12	Section VI	Food Processing (I)
Time	Paper #	Moderator: Shujun Li (China) Room: 2104AB
10:15		Session Opening
10:20	100069	Development of model equations for selecting optimum parameters for dry process of shea butter extraction A. M. Olaniyan, K. Oje (Nigeria)
10:40	100336	Acrylamide mitigation in fried potato slices by using commercial asparaginase F. Pedreschi, K. Granby, J Risum (Chile/Denmark)
11:00	100630	Microwave-assisted separation of eggshell and membrane A. Hussain, S. Dev, Y. Gariepy et al. (Canada)
11:20	101048	Prediction of lactic-bacteria growth in turkey ham processed by high hydrostatic pressure S.P. Mathias, A. Rosenthal, A. Gaspar et al. (Brazil/France)
11:40	100200	Combined effects of freezing and storage conditions on the staling of cooked rice S. F. Yu, Y. Ma, D. Tian et al. (China/Ireland)

Monday, June 14 – 10:15 to 12:00

13	Section VI	Nutraceuticals and Functional Foods (I)
Time	Paper #	Moderator: Valérie Orsat (Canada) Room: 2105
10:15		Session Opening
10:20	100555	Microwave extraction of myrtillin from blueberry W. Routray, V. Orsat (Canada)
10:40	100558	Radio frequency assisted extraction of nutraceutical compounds Y.M. Jusoh, V. Orsat, Y. Gariépy (Canada)
11:00	101304	Continuous and pulsed ultrasound-assisted extractions of antioxidants from pomegranate peel W. Qu, Z. Pan, H. Ma et al. (United States/China)
11:20	101320	Antioxidant enrichment of cranberry juice by electrodialysis with filtration membrane : Impact of process on juice composition L. Bazinet, S. Brianceau, Y. Desjardins (Canada)
11:40	100862	A novel technique for producing zanthoxylum oil particles based on supercritical CO_2 extraction and microencapsulation methods I. Chen (China)

Monday, June 14 – 10:15 to 12:00

14	Section VII and WCCA	Image Analysis
Time	Paper #	Moderator: Renfu Lu (USA) Room: 2101
10:15		Session Opening
10:20	100364	Image analysis, 3D geometry modeling and inverse FEA in investigating properties of agri-food and forest products J. Weres, S. Kujawa, K. Nowakowski et al. (Poland)
10:40	100777	Detection of fusarium damaged kernels in wheat using hyperspectral imaging M. A. Shahin, S. J. Symons (Canada)
11:00	101337	Hyperspectral character analysis of rice leaves infested by brown plant-hopper (Nilaparvata lugens) Z. Zhou, Z. Zhao, X. Luo et al. (China)
11:20	100934	Automatic grading of anthurium cut flowers using 3D computer vision J. Hemming, E. J. Pekkeriet, R. Van Der Schoor (Netherlands)
11:40	100250	A hybrid wavelet transform-based agricultural image de-noising algorithm Y. F. Zeng (China)

Monday, June 14 – 10:15 to 12:00

15	Section VII and WCCA	Modelling and Simulation – POSTERS
Poster #	Paper #	Moderator: Antonio M Saraiva (Brazil) Room: 2000D
17	101485	Production process evaluation of wastewater-irrigated plant biomass through life cycle assessment C. Arcidiacono, S.M.C. Porto (Italy)
18	100399	Simulation of creep process of processed alfalfa based on virtual prototype technology C. G. Wang, G. Z. Zhao, Z. Wang (China)
19	101110	Prediction of process and product parametrers in deep bed drying of rough rice using artificial neural network M. Tohidi, M. Sadeghi, S.R. Mousavi (Iran)
20	101471	Conceptual modeling for the design of a computer-based traceability system G. Cascone, C. Arcidiacono, S.M.C. Porto et al. (Italy)
21	101488	From the construction of an ecological network to the definition of an environmentally sustainable planning model for periurban space C.R. Fichera, L. Laudari, G. Modica (Italy)
22	101359	Comparison of fuzzy logic and classic controllers' performance in guiding of a greenhouse applications robot H. Masoudi, M. Omid, R. Alimardani et al. (Iran)

Monday, June 14 – 13:35 to 15:20

Monday, June 14 – 13:35 to 15:20

16	AEES	Stream Water and Wetland Interactions (II)
Time	Paper #	Moderator: Cully Hession (USA) Room: 206A
13:35		Session Opening
13:40	101604	Patterns in groundwater hydrology of a small constructed floodplain wetland A.L. Ludwig, W.C. Hession (United States)
14:00	101585	Quantifying and utilizing uncertainty in stream restoration design J.P. Resop, W.C. Hession, T.M. Wynn (United States)
14:20	101528	Meander bend regulation of surface-ground water exchange and impacts for restoration design B. Han, T. Endreny (United States)
14:40	101519	Aquatic macroinvertebrate diversity in constructed stormwater wetlands T. L. Moore, W.F. Hunt III (United States)
15:00	101624	The Earsing Sills Oxbow Wetland restoration effort: a case study in interdisciplinary collaborative education in ecosystem restoration. D. M. Blersch (United States)

Monday, June 14 – 13:35 to 15:20

17	IDS	Drainage Modeling in Saline Conditions
Time	Paper #	Moderator: Matt Helmers (USA) Room: 205C
13:35		Session Opening
13:40	100199	Evaluation of DRAINMOD in predicting water table fluctuations and yield of canola in paddy fields (case study: Rasht, Iran) M. Parsinejad, B. Hassanpour, M.R. Yazdani et al. (Iran)
14:00	100055	Determining optimized distance and depth of subsurface drains under unsteady flow conditions at multiple cropping pattern F. Vahdat, A. Sarraf, E. Pazira et al. (Iran)

14:20	100027	Evaluation of two drainage models in south-west Iran F. Samipour, M. Rabie, K. Mohammadi et al. (Iran)
14:40	100103	Drainage in heavy clay soil and sugar beet yield in eastern North Delta M. M. Moukhtar, A. I.N. Abdel-Aal And, M.A. B. El-Shewikh (Egypt)

Monday, June 14 – 13:35 to 15:20

18 IDS Impact of Organic Fertilizers on Drained Land

Moderator: Larry Geohring (USA)
Room: 204B

Time	Paper #	
13:35		Session Opening
13:40	100139	Occurrence of tylosin-resistant enterococci in swine manure and tile drainage stems under no-till management T.T. Hoang, M. L. Soupir (United States)
14:00	100149	Phosphorus losses though subsurface drainage in a loamy soil of Iowa: effects of rates, timing and method of swine manure and fertilizer application C. Hoang, R. Kanwar, C. Pederson (United States)
14:20	100201	Subsurface drainage nitrogen discharges following manure application: measurements and model analyses J. Melkonian, L.D. Geohring, H.M. V. Es et al. (United States)
14:40	100096	The effects of treated wastewater on soil nitrogen dynamics and winter wheat growth under different groundwater depth X. Qi, Z. Huang, P. Li et al. (China)

Monday, June 14 – 13:35 to 15:20

19 Section I Irrigation System Design

Moderator: Peilin Yang (China)
Room: 207

Time	Paper #	
13:35		Session Opening
13:40	100986	Use of two drippers spacing in the same lateral line and theirs effects on the wetted bulb formation, yield and quality of radish (Raphanus sativus l.) L. P. De Azevedo , J. C. C. Saad (Brazil)
14:00	101153	Improving the performance of landscape sprinkler irrigation through field evaluations and modelling G.C. Rodrigues, P. Paredes, M.I. Valín et al. (Portugal)
14:20	100509	Characterization of energy requirements in pressurized irrigation networks and evaluation of potential energy saving meassures in southern Spain J.A. R. Diaz, E. C. Poyato, T. C. Cobo (Spain)
14:40	101047	Optimal hydraulic and energy design of pivots directly fed with groundwater M. A. Moreno, J.F.Ortega, D. Medina et al. (Spain)
15:00	101042	Design and evaluation of an automated short furrow irrigation system N. Lecler, D. Mills, J. Smithers (South Africa)

Monday, June 14 – 13:35 to 15:20

20 Section II Field Measurements, CFD and Abatement Techniques (II)

Moderator: Werner Berg (Denmark)
Room: 204A

Time	Paper #	
13:35		Session Opening
13:40	101254	Preliminary study of ammonia emissions from naturally ventilated fattening pig houses in the South-East China K. Wang, Z. Ye, H. Li (China)
14:00	101322	Measurement of ammonia emissions from three ammonia emission reduction systems for dairy cattle using a dynamic flux chamber H.J.C. Van Dooren, J. Mosquera (Netherlands)
14:20	101366	Air pollution and livestock production A.C. Watt, S.M. Aziz, T.M. Banhazi (Australia)
14:40	101392	Reduction of gas and odour emissions from a swine building using a biotrickling filter M. Belzile, S.P. Lemay, D. Zegan et al. (Canada)
15:00	101478	Evaluation of the effectiveness of an antimicrobial air filter to avoid porcine reproductive and respiratory syndrome virus (PRRSv) aerosol transmission, after 16 months of exposure to a commercial swine environmental conditions L. Batista, F. Pouliot, L. Urizar (United States/Canada)

Monday, June 14 – 13:35 to 15:20

21 Section II Swine (I)

Moderator: John Feddes (Canada)
Room: 205B

Time	Paper #	
13:35		Session Opening
13:40	100300	Maintaining the pre-slaughter enthalpy chain improves animal welfare in pigs M. Villarroel, P. Barreiro, P. Kettlewell et al. (Spain/United Kingdom)
14:00	100921	Effect of a water-cooled cover on the thermal comfort of pregnant sows in hot and humid climate Z. Pang, B. Li, H. Xin et al. (China/Korea/United States)
14:20	101074	Modelling the stress responses of livestock to the thermal loads experienced on transcontinental, export journeys M.A. Mitchell, P.J. Kettlewell, M. Villarroel et al. (United Kingdom/Spain)
14:40	101119	Pathogen removal from pig manure by full-scale psychrophilic anaerobic digestion in sequencing batch reactors Y. Gilbert, D. Massé, E. Topp (Canada)
15:00	101391	Impact of temperature control strategies on animal performance, gas emissions and energy requirements for grower-finisher pigs S.P. Lemay, J. Feddes, F. Pouliot et al. (Canada)

Monday, June 14 – 13:35 to 15:20

22 Section III Soil Tillage Equipment and Analysis (II)

Moderator: Carol Plouffe (USA)
Room: 203

Time	Paper #	
13:35		Session Opening
13:40	101350	Application of discrete element method (DEM) simulations as a tool for predicting tillage tool wear L. Graff, M. Roberge, T. Crowe (Canada)
14:00	101375	DEM analysis of the soil-tool (sweep) interaction K. Tamás, I.J. Jóri (Hungary)
14:20	101414	Tillage and planting energies for corn production under three tillage systems on a clay-loam soil N.B. Mclaughlin, C.F.Drury, W.D.Reynolds et al. (Canada)
14:40	101143	Development of below-floor level soil bin system for soil tillage dynamics research at the Federal University of Technology Akure, Nigeria L.A.S. Agbetoye, S.I. Manuwa et al. (Nigeria)
15:00	100514	Tillage effects on soil and production management for winter wheat in southwest Turkey Z. B. Barut, S. Aykanat, M. M. Turgut (Turkey)

Monday, June 14 – 13:35 to 15:20

23 Section III Cutting and Threshing Mechanisms

Moderator: Martin Roberge (Canada)
Room: 205A

Time	Paper #	
13:35		Session Opening
13:40	100897	Development of a water catcher for high pressure water jet cutting of agricultural goods D. Juenemann, H.-H. Harms (Germany)
14:00	101031	Qualitative and quantitative aspects on field drying of sorghum and evaluating the mower conditioner prototype devised by Cra-Ing - Cressoni L. Pari, A. Assirelli, A. Suardi (Italy)
14:20	100851	Effect of various operational and design parameters on the performance of a rotary feeding and cutting system E. Veikle, M. Roberge, V. Meda (Canada)
14:40	101122	Effects of some cutting blade and plant factors on specific cutting energy of sugarcane stalk J. Razavi, M. Kardany, A. Masoumi (Iran)

15:00	100316	Comparative analysis of the threshing cylinders performance on sorghum K. J. Simonyan, I. S. Dunmade (Nigeria/Canada)

Monday, June 14 – 13:35 to 15:20

24 Section III Field Equipment – POSTERS

Moderator: Roger Thériault (Canada)
Room: 2000D

Poster #	Paper #	
23	101428	Velocity of conveyed seeds in an inclined transition tube P. Binsirawanich, S. Noble (Canada)
24	101349	Modeling of soil flow for tillage tools, seeders and planters M. Roberge (Canada)
25	101355	Modeling of crop flow in combine chopper and spreader M. Roberge, J. Benes, H. Isaac (Canada/United States)
26	100239	Influential parameters for designing and power consumption calculating of cumin mower E. Mahmoodi, A, Jafari, S, Rafiee (Iran)
27	101362	Mechanically-aided harvesting of artichoke with an electrically propelled prototype R. Tomasone, M. Pagano, C. Cedrola et al. (Italy)
28	100999	An innovative apparatus provided with a cutting auger for producing short logs for biomass energy from fast-growing tree species G. Colorio, R. Tomasone , C. Cedrola et al. (Italy)
29	100240	Design and manufacturing of a new and simple mechanism for transmission of power between crossover shafts up to 135 degrees M. Yaghoubi, S. Saeid Mohtasebi, A. Jafari et al. (Iran)
30	100034	The design and experimental study of a testing stand for pneumatic seed metering device Z. Manquan, L. Wenzhong, W. Wenming et al. (China)
31	100796	Design and development of a cutter and feeder mechanism for a chick pea harvester H. Mostafavand, S. Kamgar (Iran)

Monday, June 14 – 13:35 to 15:20

25 Section IV Design Issues for Biogas Production

Moderator: Zoltán Sibalszky (Hungary)
Room: 2102B

Time	Paper #	
13:35		Session Opening
13:40	100658	Optimization and control of a novel upflow anaerobic solid-state (UASS) reactor J. Mumme, B. Linke, R. Tölle (Germany)
14:00	100724	Drying characteristics and nitrogen loss of biogas digestate during drying process C. Maurer, J. Müller (Germany)
14:20	101041	Biodrying of animal slaughterhouse residues and heat production Yves Bernard (Canada)
14:40	101578	Transforming anaerobic digestion with the 'Model T' of digesters J.F. Martin, R. Ciotola, J. Castano et al. (United States)
15:00	101311	Bioreactors E. Jamaleddine (Canada)

Monday, June 14 – 13:35 to 15:20

26 Section V Ergonomics and Safety

Moderator: Ladislav Nozdrovicky (Slovakia)
Room: 2105

Time	Paper #	
13:35		Session Opening
13:40	100263	Ergonomic aspects of operation of IT systems in precision agriculture T.Juliszewski, M.Walczykova (Poland)
14:00	100312	Work economics and ergonomics in dairy farming K. Heitkämper, M. Riegel, M. Schick (Switzerland)
14:20	101064	A predictive model for the vibration risk evaluation in agricultural machinery use D. Pessina, V. Bonalume (Italy)
14:40	101482	Definition of unambiguous criteria to evaluate tractor ROPS equivalence D. Pessina, D. Facchinetti, M. Belli (Italy)
15:00	101510	Effectiveness of agricultural tractors cabs for protection against hazardous substances in accordance with EN 15695 part 1 E.Cavallo (Italy)

Monday, June 14 – 13:35 to 15:20

27 Section VI Food Processing (II)

Moderator: Alain Le-Bail (France)
Room: 2104AB

Time	Paper #	
13:35		Session Opening
13:40	101376	Migration of perfluorinated compounds from antistick coating to food products during cooking processes A. Le-Bail, B. Veyrand, S. Durand et al. (France)
14:00	101078	Study the effect of two different edible coating on walnut kernel shelf life R. Bastani, M. Rahemi, N. Mafoonazad et al. (Iran/Canada)
14:20	101290	Effect of microwave radiation on starch digestibility and physico-chemical properties of three barley types S. Emami, A. Perera, V. Meda et al. (Canada)
14:40	101344	Mango (Mangifera indica) and ambarella (Spondias cytherea) peel extracted pectins improve viscoelastic properties of derived jams G. Kansci, B.B. Koubala, C. Garnier et al. (Cameroon/France)
15:00	101206	Development and commercialization of emerging infrared radiation food processing technologies Z. Pan, G.G. Atungulu, G. Bingol et al. (United States)

Monday, June 14 – 13:35 to 15:20

28 Section VI Spectroscopy and Image Analysis – POSTERS

Moderator: Da-Wen Sun (Ireland)
Room: 2000D

Poster #	Paper #	
32	100967	Testing of a NIR system for the optimization of stored apples management R. Beghi, E. Casiraghi, N. Sinelli et al. (Italy)
33	100601	A novel computer vision system for specifically detecting rotten citrus J. Blasco-Ivars (Spain)
34	100602	Analysis of the movement of fruits during mechanical harvesting with shakers using computer vision and a slow motion camera J. Blasco, A. Torregrosa, N. Aleixos et al. (Spain)
35	100631	Determination of metals in organic pulp and juices by fluorescence X-ray G. A. Camargo (Brazil)
36	100917	Investigation on fatty acid composition of Japanese black wagyu beef by ATR-FTIR spectroscopy and chemometric analysis X. Hu, K. Toyoda, M. Yamanoue, I.Ihara et al. (Japan)
37	100978	Identification and classification of out of control measurements of a NIR spectrometer under industrial use for onion quality determination J. Ortiz-Cañavate, A. Moya-González, P. Barreiro (Spain)
38	101092	Browning kinetics evaluation using image processing techniques L. Comba, P. Gay, P. Piccarolo et al. (Italy)
39	101134	Application of hyperspectral imaging technique for determination of pork quality attributes D.F. Barbin, G. Elmasry, D.-W. Sun et al. (Ireland)
40	101148	Use of hyperspectral imaging for the quality classification of cooked turkey hams A. Iqbal, G. Elmasry, D.-W. Sun et al. (Ireland)
41	101173	Adjusted methodology for determining residence time by image analysis on a vibro-fluidized dryer R.A. De Oliveira, K.J. Park, B.S. Oliveira (Brazil)
42	101473	Prediction of melon fruit firmness using Vis/NIR diffuse reflectance spectroscopy S.H. Yu, S.R. Suh, K.H. Lee et al. (Republic Of Korea)
43	101492	Discrimination of lamb muscles by NIR hyperspectral imaging M. Kamruzzaman, G. Elmasry, D.-W. Sun et al. (Ireland)

44	100265	Non-destructive measurement of SSC, pH, firmness and density of 'Dangshan' pear using FT-NIR spectrometry K. J. Chen, L. Yang, X. Sun (China)
45	100264	Classification of pre-sliced ham images with quaternionic singular values using an adaptive multilayer perceptron N. A. Valous, D.-W. Sun (Ireland)

Monday, June 14 – 13:35 to 15:20

29 Section VI Food Properties (I) – POSTERS

Moderator: Satyanarayan R.S. Dev (Canada)
Room: 2000D

Poster #	Paper #	
46	100433	Dimension characteristics evaluation of coffee berries during drying G.H.H. Oliveira, P.C. Corrêa, F.M. Botelho et al. (Brazil)
47	100493	Thermal characteristics of gelatin extracted from emperor (shaari) skin: effects of acid concentration and temperature of extraction G. Al-Saidi, M. S. Rahman, A. Al-Alawi et al. (Oman)
48	100710	Rheological characteristics of assai and passion fruit smoothies fortified with unripe banana pulp G. A. Camargo, J. Mieli, S. C. S. R. De Moura et al.(Brazi)l
49	100733	Water vapor permeability, contact angle and water solubility of zein biofilms J.F. Lopes-Filho, C.B. Almeida, L.L. Tavares et al. (Brazil)
50	101069	Orange fruit rheometrical characterization using stress-relaxation tests F. Pallottino, M. Moresi, S. Giorgi et al. (Italy)
51	101109	Analysis of thermodynamic properties of coffee berries during drying G.H.H. Oliveira, P.C. Corrêa, F.M. Botelho et al. (Brazil)
52	101111	Monitoring of coagualtion process of soymilk by an integrated electrical sensing and control system K. Toyoda, X. Li (Japan/China)
53	100618	Modeling and statistical characteristization of the size and mass distrbution of raisin berries A. Arabhosseini, N. Karimi, M. H. Kianmehr et al. (Iran)

Monday, June 14 – 13:35 to 15:20

30 Section VII and WCCA Robotics and Automation (I)

Moderator: Fedro Zazueta (USA)
Room: 2101

Time	Paper #	
13:35		Session Opening
13:40	100984	Development of a remote control system for autonomous agricultural vehicles X. Zhang, Dr. P. O. Noack, L. Grandl et al. (Germany)
14:00	101157	Rice plant detection in heading term for autonomous robot navigation R. Masuda, K. Nakayama, K. Nomura (Japan)
14:20	101358	Design, fabrication and evaluation of a mobile robot for greenhouse spraying H. Masoudi, R. Alimardani, M. Omid et al. (Iran)
14:40	101278	Test and evaluation of two process control strategies for adapting direct injection pesticide application to small scale farms A. El Aissaoui, F. Lebeau, M.-F. Destain (Morocco/Belgium)

Monday, June 14 – 15:35 to 17:00

Monday, June 14 – 15:35 to 17:00

31 AEES Climate and Watershed Ecology

Moderator: Dan Hitchcock (USA)
Room: 206A

Time	Paper #	
15:35		Session Opening
15:40	101590	Climate change, energy scarcity, and Mississippi Delta restoration J.W. Day, P. Kemp (United States)
16:00	101620	Defining sustainable development targets for coastal hydrology, water quality, and ecology in South Carolina, USA D.R. Hitchcock, A.D. Jayakaran, D.M. Rogers et al. (USA)
16:20	101595	Design and implementation of a forebay-pond-wetland system for urban stormwater treatment in south Texas X. Pan, K.D. Jones, S. Wang et al. (United States)
16:40	100450	Update on setting the global temperature using ecological engineering A. J. Horne (United States)

Monday, June 14 – 15:35 to 17:00

32 IDS Drainage and Salinity

Moderator: Gary Sands (USA)
Room: 205C

Time	Paper #	
15:35		Session Opening
15:40	100109	Salt leaching efficiency of subsurface drainage systems at presence of diffusing saline water table boundary: A case study in Khuzestan Plains, Iran E. Pazira, M. Homaee (Iran)
16:00	100133	Estimating reclamation water requirement and predicting final soil salinity for soil desalinization A. Sarraf, F. Vahdat, E. Pazira et al. (Iran)
16:20	100164	Soil salinity change detection in irrigated area under Qazvin Plain irrigation network using satellite imagery P. D. Arasteh (Iran)

Monday, June 14 – 15:35 to 17:00

33 IDS Water Treatment with Wetland and Drainage Systems

Moderator: Shiv Prasher (Canada)
Room: 204B

Time	Paper #	
15:35		Session Opening
15:40	100232	Establishing a relationship between hydraulic efficiency and treatment performance in constructed wetlands M. Wahl, L. C. Brown, A. O. Soboyejo et al. (USA/China)
16:00	101626	Understanding the removal mechanisms of pharmaceutical compounds in a constructed wetland setup S.A. Hussain, S. Prasher (Canada)
16:20	100169	Temperature effects on shallow water infiltration rates in an underground rock bed BMP M. Horst (United States)
16:40	100231	Lessons gained from French R&D programs for pesticides dissipation by use of constructed wetlands J. Tournebize, B. Vincent, C. Chaumont et al. (France)

Monday, June 14 – 15:35 to 17:00

34 Section I Equipment for Irrigation and Soil Monitoring

Moderator: Luis Santos Pereira (Portugal)
Room: 207

Time	Paper #	
15:35		Session Opening
15:40	101545	Sensors for effective irrigation scheduling and improved water use efficiency of cotton cultivars C. Bellamy, A. Khalilian, H. Farahani et al. (United States)
16:00	101017	Effect of the type of sprinkler and height above the soil on onion (Allium cepa L.) crop J.A. De Juan Valero, A. Domínguez, J.M. Tarjuelo et al. (Spain)

16:20	101170	Advanced technologies applied to hose reel rain-gun machines: New perspectives towards sustainable sprinkler irrigation G. Ghinassi (Italy)
16:40	101339	A triple-sensor horizontal penetrometer for on-the-go measuring soil moisture content, electrical conductivity and mechanical resistance Q. Zeng, Y. Sun, P.S. Lammers (China/Germany)

Monday, June 14 – 15:35 to 17:00

35 Section II Swine (II)

Time	Paper #	Moderator: Stéphane Godbout (Canada) Room: 205B
15:35		Session Opening
15:40	101415	New building concepts for sustainable swine production in Québec: A systematic review S. Godbout, N. Turgeon, S.P. Lemay et al. (Canada)
16:00	100445	Influence of water sprinkling on the amount of dust particles in a house for fattening pigs S. Nimmermark (Sweden)
16:20	100478	Heating and cooling performance of an under floor earth tube air tempering system in a mechanical ventilated farrowing house E. F. Hessel, C. Zurhake, H. F. A. V. D. Weghe (Germany)
16:40	100425	Gait and force analysis of provoked pig gait on clean and fouled rubber mat surface H. V. Wachenfelt, C. Nilsson, S. Pinzke (Sweden)

Monday, June 14 – 15:35 to 17:00

36 Section II Greenhouses and Horticulture

Time	Paper #	Moderator: Daniel Massé (Canada) Room: 204A
15:35		Session Opening
15:40	101221	Development of bioengineering processes to transform greenhouse waste into energy, fertilizer and tomato D. Brisson, D.I. Massé, P. Juteau et al. (Canada)
16:00	101277	Influence of insect nets and thermal screens on climate conditions of commercial scale greenhouses: A CFD approach A.A. Sapounas, S. Hemming, H.F. de Zwart et al. (Netherlands)
16:20	100407	Energy consumption and commercial applications of liquid foam insulation technology for greenhouses J.Villeneuve, D. De Halleux, K. Aberkani et al. (Canada)
16:40	101227	Generating usable and safe CO2 for enrichment of greenhouses from the exhaust gas of a biomass heating system L.-M. Dion, M. Lefsrud (Canada)

Monday, June 14 – 15:35 to 17:00

37 Section II Emissions from Buildings: Measurement and Abatement Techniques – POSTERS

Poster #	Paper #	Moderator: Peter Kai (Denmark) Room: 2000D
54	100472	A summary of ventilation rate measuring techniques through ventilated buildings S. E. Ozcan, E. Vranken, D. Berckmans (Belgium)
55	100758	Development and validation of a simplified method to quantify gaseous emissions from cattle buildings M. Hassouna, P. Robin, A. Brachet et al. (France)
56	100543	Reduced emission by applying pit exhaust in naturally ventilated livestock production buildings – Feasibility studies based on a wind tunnel investigations W. Wu, P. Kai, G. Zhang (Denmark)
57	100893	CFD analysis and comparison of forced-ventilation systems of poultry houses in Korea S.-H. Song, I.-B. Lee, H.-S. Hwang et al. (Korea/Philippines)
58	101555	Improvement of a passive flux sampler for the measurement of nitrous oxide (N_2O) emissions J.H. Palacios, S. Godbout, R. Lagacé et al. (Canada)
59	100550	Ammonia and carbon dioxide emissions in tunnel-ventilated broiler houses in Sao Paulo State – Brazil K.A.O. Lima, D.J. Moura, L.G.F. Bueno et al. (Brazil/USA)
60	101010	Evaluation of different minimum ventilation systems in the production of broiler chickens on the air quality in period 1 to 7 days I. Menegali, I. De F. F. Tinôco, S. Zolnier et al. (Brazil)
61	100900	Effects of wood shavings addition and different climatic conditions on ammonia and odour emissions from fresh animal manure N.M.Ngwabie,S.Nimmermark,K.-H.Jeppsson et al. (Sweden)

Monday, June 14 – 15:35 to 17:00

38 Section III Crop Management

Time	Paper #	Moderator: Hubert Landry (Canada) Room: 203
15:35		Session Opening
15:40	100476	Best management practices for operating wind machines for minimizing cold injury in Ontario H. W. Fraser, K. Slingerland, K. Ker (Canada)
16:00	100891	Review of technological advances and technological needs in ecological agriculture (organic farming) H. Chaoui, C. G. Sørensen (Canada/Denmark)
16:20	101106	Controlled traffic farming and minimum tillage: Results of initial experiments and a layout of a long term experiment J. Galambošová, V. Rataj, M. Macák et al. (Slovakia)
16:40	101284	Harvesting canbus data to improve soil compaction management N. Dubuc, V. Raghavan, R. Recker (Canada/USA)

Monday, June 14 – 15:35 to 17:00

39 Section III Sensors and Measurement

Time	Paper #	Moderator: Noboru Noguchi (Japan) Room: 205A
15:35		Session Opening
15:40	100043	Monitoring of grain quality and segregation of grain according to protein concentration threshold level on an operating combine harvester H. Risius, J. Hahn, H. Korte (Germany)
16:00	100344	Field evaluation and comparison of two silage corn mass flow rate sensors developed for yield monitoring M. Loghavi, M. M. Maharlouie, S. Kamgar (Iran)
16:20	101188	The development of a standard test method for measuring the evenness of flow off meter rollers J. Gervais, S. Noble (Canada)
16:40	101060	A device for extracting 3D information of fertilizer trajectories B. Hijazi, J. Baert, F. Cointault et al. (France)

Monday, June 14 – 15:35 to 17:00

40 Section IV Management and Biogas Production (joint with AEES)

Time	Paper #	Moderator: Frédéric Pelletier (Canada) Room: 2102B
15:35		Session Opening
15:40	101387	Microbial community analysis of ambient temperature anaerobic digesters R. Ciotola (United States)
16:00	101597	Gas production analysis of a fixed-dome digester operated under temperate climates in central Ohio J. Castano, J. Martin, R. Ciotola et al. (United States)
16:20	101113	Impact of harvesting time on ultimate methane yield of switchgrass grown in Eastern Canada Y. Gilbert, D. Massé, P. Savoie et al. (Canada)
16:40	101052	Farm-scale anaerobic digestion of beef and dairy cattle manure for energy cogeneration at two farms in Canada N. Patni, C. Monreal, X. Li et al. (Canada)

Monday, June 14 – 15:35 to 17:00

41	Section V	Technology for Improved Management – POSTERS
Poster #	Paper #	Moderator: Remigio Berruto (Italy) Room: 2000D
62	100948	Power spectral analysis of agricultural field surfaces M. Cutini, C. Bisaglia, S. A. Bertinotti (Italy)
63	101086	Radio frequency identification technologies for traceability of potted flowering plants C. Tortia, P. Barge, P. Gay et al. (Italy)
64	101038	First approach to correlate the tire contact area to traction force in the field E. Romano, M. Cutini, C. Bisaglia et al. (Italy)
65	100972	A new approach for in situ poultry carcasses disposal: A closed semi-continuous composter A. C. Guimaraes, M. S. Bascones, L. M. Navas Gracia et al. (Spain)
66	100498	Comparison of useful life of tractors by condition monitoring and breakdown maintenance in Iran H. M. Meighani, A. Mohammadi (Iran)
67	101549	Use of electronic devices in combine harvesters: A case study for Antalya Region in Turkey D. Yilmaz, M. Canakci, I. Akinci (Turkey)
68	100740	Power and energy requirements of agricultural machinery driven by tractor used on greenhouse vegetable production in Turkey M. Canakci, I. Akinci (Turkey)
69	100497	Investigating JD3140 tractor breakdowns and their reasons H. M. Meighani, A. Mohammadi, M. Raoufi (Iran)
70	100499	Design and manufacturing a new platform for rapeseed harvesting in Iran H. M. Meighani, A. H. Mohseni, S. Ebrahimi (Iran)

Monday, June 14 – 15:35 to 17:00

42	Section VI	Food Processing (III)
Time	Paper #	Moderator: Martin Mondor (Canada) Room: 2104AB
15:35		Session Opening
15:40	100742	Solvent recovery by membrane filtration from extract of raspberry marc Z. Molnár, K. Özdemir, E. Békássy-Molnár et al. (Hungary)
16:00	101303	Applications of membrane technologies for today and tomorrow M. Mondor, F. Lamarche, D. Ippersiel et al. (Canada)
16:20	101205	Fermenters with magnetic fields for agriculture. Technological and practical issues S.M.M. Diego, C.M. Manrique, F.S. Ricardo et al. (Cuba/Brazil)
16:40	101062	Enhancement of extraction efficiency of citrus juice and sacs by twin oblique air jet moves in 3D space M. R. Mirian, J. Khazaei (Iran)

Monday, June 14 – 15:35 to 17:00

43	Section VI	Nutraceuticals and Functional Foods (II)
Time	Paper #	Moderator: Vijaya Raghavan (Canada) Room: 2105
15:35		Session Opening
15:40	100694	Using plant macromolecules to produce flavor microcapsules by spray-drying multilayered oil/water emulsions A. Gharsallaoui, O. Chambin, R. Saurel (France)
16:00	100781	Microwave-assisted methodology for quantitative analysis of lignans in foods S. M. Nemes, V. Orsat, G. S. V. Raghavan (Canada)
16:20	101279	Diversity of fruit origin by using 26S rDNA fingerprinting of yeast communities by PCR-DGGE: An application to shea tree fruits A.F. El Sheikha, J.-M. Bouvet, D. Montet (Egypt/France)
16:40	100612	Aroma properties of selected local spices in Akwa Ibom State of Nigeria A. F. Alonge, E. U.U. Ituen et al. (Nigeria)

Monday, June 14 – 15:35 to 17:00

44	Section VI	Drying, Dehydration and Deactivation – POSTERS
Poster #	Paper #	Moderator: Sébastien Villeneuve (Canada) Room: 2000D
71	100267	Effect of different variables on microwave osmotic dehydration under spray mode (MWODS) of apple cylinder using response surface methodology E. Azarpazhooh, H. S. Ramaswamy (Canada)
72	101272	Effect of packaging and preservation methods on the qualitative and sensory characteristics of dehydrated Jujuba fruit E. Azarpazhooh, S. Nikkhah (Iran)
73	100965	Quality of the pulped cherry coffee subjected to continuous and intermittent drying J. N. Da Silva,S. Martin,S.M. Lopes Donzeles et al.(Brazil)
74	101103	Thin-layer drying behaviour of coffee berries A.L.D. Goneli, P.C. Corrêa, G.H.H. Oliveira et al. (Brazil)
75	101317	Effect of drying temperature on structure of pasta enriched with pea protein isolate S.Mercier, S.Villeneuve,L.-P.Des Marchais et al. (Canada)
76	101329	Experimental study of banana drying energy costs in a prototype electric drier A. Talla, Y. Jannot, G.E. Nkeng (Cameroon/France)
77	100463	Pulsed electric fields and microfiltration hurdle treatment for the implementation of microbial safety in milk M.Walkling-Ribeiro,O.Rodríguez-González et al. (Canada)
78	101209	Use of a novel in-package ozonation process for reducing Salmonella enteritidis on chicken meat J. Jensen, A. Donner, K.M. Keener (United States)
79	101316	Modelling and simulation of processes by smart sensing: A solar dryer for plant material E.C. Correa, B. Diezma, M. Ruiz-Altisent (Spain)
80	101029	Thin layer drying of sliced squash by forced convection C. Ertekin, O. Yaldiz (Turkey)
81	101658	Drying of dates in Oman using a solar tunnel dryer M.A. Basunia, H.H. Handali, M.I. Al-Balushi et al. (Oman)

Monday, June 14 – 15:35 to 17:00

45	Section VII and WCCA	Robotics and Automation (II)
Time	Paper #	Moderator: Omar Ulloa (Costa Rica) Room: 2101
15:35		Session Opening
15:40	101182	Developing a framework based database (or as a central tool for) mapping and analysing research and development on ICT and robotics in agriculture and environmental related businesses J. Vangeyte, S. Ms Van Weyenbergh, J. Baert et al. (Belgium/Denmark)
16:00	100761	Vision-based weed identification with farm robots Kishore C. Swain, Michael Nørremark, D. Bochtis et al. (Denmark)
16:20	101012	Design of an autonomous spraying robot for greenhouse L. Livne, Y. Edan, A. Bechar (Israel)

Monday, June 14 – 19:00 to 22:00

Cruise on St. Lawrence River – see details on page 8.

Tuesday, June 15 – 8:15 to 9:50

Plenary Session on Climate Change and the Green Economy – see details pages 8-9.

Tuesday, June 15 – 10:15 to 12:00

Tuesday, June 15 – 10:15 to 12:00

46 AEES Water Management and Crop Production

Moderator: Stacy Hutchinson (USA)
Room: 206A

Time	Paper #	
10:15		Session Opening
10:20	101591	Water use and sustainability in global corn production J.P. Resop, M.D. Matlock, W.C. Hession et al. (USA)
10:40	101593	Greywater irrigation: Antibacterial agents as barriers to greywater reuse D.I. Harrow, R.J. Currer,R.E. Templin et al.(USA)
11:00	101608	Rain garden networks: Impacts on water quality C.G. Eger, D.A. Schlea, J.F. Martin (USA)
11:20	101612	Using USGS NAWQA and EPA WSA data to assess the impact of agricultural practices on aquatic biodiversity, in-stream water quality, and habitat parameters affecting benthic macroinvertebrates E. Cummings, M. Matlock, R.Z. Johnston (USA)
11:40	101384	Spatial and temporal variation in the biodegradation of organophosphate pesticides in agricultural drains and riparian wetlands M.E. Karpuzcu, J. Hanlon, D. Sedlak et al. (USA)

Tuesday, June 15 – 10:15 to 12:00

47 IDS Performance of Drainage Water Management Systems

Moderator: Larry Brown (USA)
Room: 205C

Time	Paper #	
10:15		Session Opening
10:20	100206	DRAINMOD-simulated performance of drainage water management across the U.S. Midwest M. A.Youssef, R. W.Skaggs, K.R.Thorp et al. (USA/Egypt)
10:40	100084	Potential water quality impact of drainage water management in the Midwest USA D. B. Jaynes, K. R. Thorp, D. E. James (USA)
11:00	100138	Water table response to drainage water management in southeast Iowa M. Helmers, R. Christianson, G. Brenneman et al. (USA)
11:20	100154	Controlled drainage to improve edge-of-field water quality in southwest Minnesota, USA S.E. Feser, J.S. Strock, G.R. Sands et al. (USA)
11:40	100222	Methods to estimate effects of drainage water management on annual N losses to surface waters R. W. Skaggs, M. A. Youssef, G.M. Chescheir (USA)

Tuesday, June 15 – 10:15 to 12:00

48 Section I Impact of Climate Change on Watersheds

Moderator: Juan Antonio Rodríguez Díaz (Spain)
Room: 207

Time	Paper #	
10:15		Session Opening
10:20	101332	Impact assessment of climate change on irrigation by a distributed water circulation model T. Masumoto, R. Kudo, T. Yoshida et al. (Japan)
10:40	100790	Climate change impact assessment for a small river basin using a process-based numerical model of coupled surface water/groundwater flow M. Sulis, C. Paniconi, C. Rivard et al. (Canada)
11:00	100979	Sustainable planning of land use changes in farming areas under ecological protection F.Montero-García, F.Montero-Riquelme, A. Brasa-Ramos et al. (Spain/Netherlands)
11:20	101184	Forecasting hydrological time series in the face of climate change J. Adamowski (Canada)

Tuesday, June 15 – 10:15 to 12:00

49 Section II Methods to Quantify Emissions in Naturally Ventilated Buildings (I)

Moderator: Hisamitsu Takai (Denmark) Room: 204A

Time	Paper #	
10:15		Session Opening
10:20	100467	A critical evaluation of the accuracy of tracer gas measurements in ventilated spaces S. Ozcan, D. Berckmans (Belgium)
10:40	100542	Uncertainty analysis of using CO_2 production models by cows to determine ventilation rate in naturally ventilated buildings G. Zhang, S. Pedersen, P. Kai (Denmark)
11:00	100656	Flux chamber validation for ammonia measurement versus whole room emission E.F. Wheeler, P.A. Topper et al. (USA)
11:20	100682	Development of a fast measurement method for the determination of ammonia emission reduction from floor related measures J.Mosquera,H.J.Van Dooren,A. Aarnink et al. (Netherlands)
11:40	100702	Use of gas concentration data for estimation of methane and ammonia emission from naturally ventilated livestock buildings B. Bjerg, G. Zhang, J. Madsen et al. (Denmark)

Tuesday, June 15 – 10:15 to 12:00

50 Section II Cattle (I)

Moderator: Joahnn Palacios (Canada) Room: 205B

Time	Paper #	
10:15		Session Opening
10:20	100252	An expert system for planning and designing milking parlour constructions M. Hatem, M. Samer, H. Grimm et al. (Egypt/Germany)
10:40	100276	How to rectify design flaws of dairy housing in hot climates? M. Samer (Egypt)
11:00	100370	Housing for replacement heifers and dairy cows J. Flaba, H. Georg, R.E. Graves et al. (Belgium/Germany/USA)
11:20	100645	Effect of temperature and physico-chemical characteristics on the efficiency of coagulation flocculation pretreatment of water on dairy farms L. Masse, D. I. Massé, É. Pariseau et al. (Canada/USA)
11:40	100690	Effects of different cluster types on teat condition and milk release parameters S. Sagkob, H.-J. Rudovsky, S. Pache et al. (Germany)

Tuesday, June 15 – 10:15 to 12:00

51 Section II Energy, Greenhouses and Materials–POSTERS

Moderator: Heiko Georg (Germany) Room: 2000D

Poster #	Paper #	
1	100754	Simulation models to optimize input energy in Mediterranean greenhouse production A. Marucci, A. Gusman, B. Pagniello et al. (Italy)
2	101226	Effects of photoselective shade nets on the meteorological elements, growth and radiation use efficiency of cucumber R. de C. Ferreira, N. F. Da Silva, R. de S. Bezerra (Brazil)
3	101502	A model for the evaluation of building sustainability in agri-food industry F. Barreca, G. Cardinali, S. Di Fazio (Italy)
4	101507	The natural material in bioconstruction between tradition and innovation: The use of giant reed Arundo donax l. in the rural constructions F. Barreca (Italy)
5	101021	Bedding materials for cattle barns and their thermo-technical properties in different climatic conditions J. Lendelova, Š. Mihina, Š. Pogran (Slovakia)
6	101662	Countermeasure of energy conservation of farm buildings in rural areas of cold region in China L. Mao, G. Li, D. Tian et al. (China)
7	100884	Development of a solar thermal storage system suitable for the farmhouse heating in northeast China M.-K. Jang (China)

		AEES 10th American Ecological Engineering Society Annual Meeting	IDS ASABE's 9th International Drainage Symposium	SECTION I Land and Water Eng. (including EnviroWater 2010)	SECTION II Farm Buildings, Equipment, Structures and Environment	SECTION III Equipment Engineering for Plants
MONDAY, JUNE 14		**OPENING CEREMONIES (8:15 – 9:50, Room 2000C)**				
	10:15 to 12:00	1 Stream Water and Wetland Interactions (I)	2 Drainage and Water Quality 3 Evaluating Drainage Models and Drainage Envelopes	4 Irrigation and Crop Response 5 Water Management and Soil Properties – POSTERS	6 Field Measurements, CFD and Abatement Techniques (I) 7 Poultry	8 Soil Tillage Equipment and Analysis (I) 9 Precision Agriculture and Monitoring
		GENERAL LUNCHEON (12:00 - 13:30, Room 2000AB), CSBE Annual General Meeting (12:00 - 13:30, Room 206B)				
	13:35 to 15:20	16 Stream Water and Wetland Interactions (II)	17 Drainage Modelling in Saline Conditions 18 Impact of Organic Fertilizers on Drained Land	19 Irrigation System Design	20 Field Measurements, CFD and Abatement Techniques (II) 21 Swine (I)	22 Soil Tillage Equipment and Analysis (II) 23 Cutting and Threshing Mechanisms 24 Field Equipment – POSTERS
	15:35 to 17:00	31 Climate and Watershed Ecology	32 Drainage and Salinity 33 Water Treatment with Wetland and Drainage Systems	34 Equipment for Irrigation and Soil Monitoring	35 Swine (II) 36 Greenhouses and Horticulture 37 Emissions from Buildings: Measurement and Abatement Techniques – POSTERS	38 Crop Management 39 Sensors and Measurement
TUESDAY, JUNE 15		**PLENARY SESSION (8:15 – 9:50, Room 2000C)**				
	10:15 to 12:00	46 Water Management and Crop Production	47 Performance of Drainage Water Management Systems	48 Impact of Climate Change on Watersheds	49 Methods to Quantify Emissions in Naturally Ventilated Buildings (I) 50 Cattle (I) 51 Energy, Greenhouses and Materials – POSTERS	53 Crop Protection and Weed Control (I)
		GENERAL LUNCHEON (12:00 - 13:30, Room 2000AB), AEES Annual General Meeting (12:00 - 13:30, Room 206B)				
	13:35 to 15:20	61 Ecological Engineering – POSTERS (14:00)	62 Application of Drainage Models	63 Irrigation and Development 64 Water and Crop Response – POSTERS	65 Methods to Quantify Emissions in Naturally Ventilated Buildings (II) 66 Cattle (II)	68 Crop Protection and Weed Control (II) 69 Sensors and Precision Agriculture – POSTERS
	15:35 to 17:20	75 Ecological Engineering Principles and Practices	76 Modeling Drainage Systems 77 Drainage Topics – POSTERS	78 Modeling Water Use for Crop Production	79 Reduction of Ammonia and Odour Emissions (I) 80 Manure Handling	82 Planting and Seeding 83 Crop Protection and Weed Control (III)
WEDNESDAY, JUNE 16	8:15 to 10:00	90 Trees and Crops for Sustainability (I)		92 Management of Flood, Drainage and Ground Water (joint with IDS) 93 Modeling Water in Soils and Crops – POSTERS	94 Simulation of Aerosol, Gas and Emission 95 Reduction of Ammonia and Odour Emissions (II) 96 Animal Behaviour, Housing and Welfare – POSTERS	97 Harvest of Fruits and Seeds
	10:15 to 12:00	104 Trees and Crops for Sustainability (II)	106 Drainage From Forested Lands and other Land Uses 107 Maps and Tools for Decision Makers	109 Water and Landscape Management	110 Field Measurements for Aerosol and Gas 111 Building Design and Materials	112 Harvest of Biomass (I) 113 Crop Management and Protection – POSTERS
		GENERAL LUNCHEON (12:00 - 13:30, Room 2000AB), IDS LUNCHEON (12:00 - 13:30, Room 206B)				
	13:35 to 15:20	119 Treatment Wetlands and Lagoon Management	120 Treatment of Drainage Water 121 Drainage of Irrigated lands	123 Assessment of Water Pollution and Salinity	124 Methods to Quantify Aerosol, Gas and Emissions 125 Grain Storage Issues	126 Harvest of Biomass (II) 127 Design and Modeling
		CLOSING CEREMONIES (15:35 - 17:00, Room 2000C)				

SECTION IV Energy in Agriculture	**SECTION V** Management, Ergonomics and Systems Engineering	**SECTION VI** Postharvest Technology and Process Engineering	**SECTION VII** Information Systems **WCCA** 8th World Congress on Computers in Agriculture	**EDU** Special Interdisciplinary Session on Education **NANO** Symposium on Nanotechnologies **SECTION II-B** Aquacultural Eng.
OPENING CEREMONIES (8:15 – 9:50, Room 2000C)				
10 Analysis of Biogas Production	11 Ergonomics and Agriculture – POSTERS	12 Food Processing (I) 13 Nutraceuticals and Functional Foods (I)	14 Image Analysis 15 Modelling and Simulation – POSTERS	
GENERAL LUNCHEON (12:00 - 13:30, Room 2000AB), CSBE Annual General Meeting (12:00 - 13:30, Room 206B)				
25 Design Issues for Biogas Production	26 Ergonomics and Safety	27 Food Processing (II) 28 Spectroscopy and Image Analysis – POSTERS 29 Food Properties (I) – POSTERS	30 Robotics and Automation (I)	
40 Management and Biogas Production (joint with AEES)	41 Technology for Improved Management – POSTERS	42 Food Processing (III) 43 Nutraceuticals and Functional Foods (II) 44 Drying, Dehydration and Deactivation – POSTERS	45 Robotics and Automation (II)	
PLENARY SESSION (8:15 – 9:50, Room 2000C)				
54 Biofuels	55 Human Workload in Agriculture	56 Food Processing (IV) 57 Food Properties (I) 58 Nutraceutical and Functional Foods – POSTERS	59 Information and Communication Technologies (I) 60 Wireless Technology, Sensors and Image Analysis – POSTERS	52 Aquaculture Systems
GENERAL LUNCHEON (12:00 - 13:30, Room 2000AB), AEES Annual General Meeting (12:00 - 13:30, Room 206B)				
70 Combustion and GHG	71 Crop and Biomass Logistics (I)	72 Drying and Dehydration (I) 73 Food Properties (II)	74 Information and Communication Technologies (ICT) (II)	67 Monitoring and Technology for Aquaculture
84 Biochar and Energy	85 Crop and Biomass Logistics (II)	86 Drying and Dehydration (II) 87 Spectroscopy and Image Analysis (I) 88 Post Harvest and Fresh Produce – POSTERS	89 Wireless Technology (I)	81 Aquaculture – POSTERS
98 Renewable Energy and Assessment	99 Logistics and Knowledge Transfer	100 Post Harvest and Fresh Produce (I) 101 Spectroscopy and Image Analysis (II) 102 Processing of Food and Beverages – POSTERS	103Geographical Information Systems (GIS) and Web Based Services	91 Nanotechnologies for Food Treatments
114 Biofuels and Biogas – POSTERS		115 Post Harvest and Fresh Produce (II) 116 Spectroscopy and Image Analysis (III)	117 Modeling, Simulation and Data Mining (I) 118 ICT, GIS and Web Services – POSTERS	105 Engineering Education for Agriculture, Food Systems, Ecology and Biosystems 108 Nanotechnologies for Environment and Seeds
GENERAL LUNCHEON (12:00 - 13:30, Room 2000AB), IDS LUNCHEON (12:00 - 13:30, Room 206B)				
128 Biomass, Compost and Energy Assessment – POSTERS		129 Microbiological Inactivation 130 Spectroscopy and Image Analysis (IV) 131 Food Properties (II) – POSTERS	132 Modeling, Simulation and Data Mining (II) 133 Wireless Technology (II)	122 Production and Application of Nanoparticles – POSTERS
CLOSING CEREMONIES (15:35 - 17:00, Room 2000C)				

Tuesday, June 15 – 10:15 to 12:00

52 Section II-B Aquaculture Systems

Moderator: Ed Aneshansley (USA)
Room: 205A

Time	Paper #	
10:15		Session Opening
10:20	101364	Wolffishes, ideal species for intensive aquaculture: Rearing density and welfare assessment N.R. Le François, S. Tremblay-Bourgeois, T. Benfey et al. (Canada/Iceland)
10:40	101356	A fully integrated marine environmental aquaculture recirculation system (MEARS™) in conjuction with the environmental recirculation of waste R.J. Bishop (United States)
11:00	100995	Modelling baffles in water aquaculture ponds E. Bresci, A. Giacomin, M. Falciai et al. (Italy)
11:20	100662	Intensive culture of Amur sturgeon (Acipenser schrencki) fingerlings in a recirculating aquaculture system C. Guangbin, H. Shicheng, J. Shuyi et al. (China)
11:40	101477	Inshore recirculating system for the production of marine finfish Z.T.J. Pfeiffer, P.S. Wills (United States)

Tuesday, June 15 – 10:15 to 12:00

53 Section III Crop Protection and Weed Control (I)

Moderator: Bernard Panneton (Canada)
Room: 203

Time	Paper #	
10:15		Session Opening
10:20	100076	Liquid distribution of air induction and off-center spray nozzle used to apply agrochemicals in special condition R. G. Viana, J. R. Rosell, L. R. Ferreira et al. (Brazil/Spain)
10:40	101144	Characterizing ambient and spray mixture effects on droplet size represented by water sensitive paper (WSP) S.J. Thomson, M.E. Lyn (United States)
11:00	100931	Development of on-site emulsifying device for production of cooking-oil-based pesticides G.-M. Samuel, M. Amos, E. Yigal et al. (Israel)
11:20	100755	Electronic canopy characterization and real-time variable rate dosing for crop protection in precision fructiculture: Efficiency increase and drift reduction A. Escolà, R. Sanz, J.R. Rosell et al. (Spain)
11:40	100673	The effect of fan frequency on the droplet spraying swath of air blast sprayer S. Song (China)

Tuesday, June 15 – 10:15 to 12:00

54 Section IV Biofuels

Moderator: Guillaume Pilon (Canada)
Room: 2102B

Time	Paper #	
10:15		Session Opening
10:20	100337	Potentials of biofuels A. Munack, J. Krahl, O. Schröder et al. (Germany)
10:40	100880	Numerical investigation of a bubble-column photo-bioreactor design for biodiesel production from microalgae I.-H. Seo, I.-B. Lee, H.-S. Hwang et al. (Korea)
11:00	101073	Energy and $CO_{2\,eq}$ analysis of the agricultural phase in the sunflower biodiesel chain P. Spugnoli, R. Dainelli, L. D'Avino et al. (Italy)
11:20	101214	Energy analysis of biochemical conversion processes of biomass to bioethanol M.D. Bakari, M. Ngadi, T. Bergthorson (Canada)
11:40	101283	Cultivation and utilization of specific wood biomass for synthesis of cellulose based bioethanol L. Fara, C. Cincu, G. Hubca et al. (Romania)

Tuesday, June 15 – 10:15 to 12:00

55 Section V Human Workload in Agriculture

Moderator: Tadeusz Juliszewski (Poland)
Room: 204B

Time	Paper #	
10:15		Session Opening
10:20	100950	Using the CUELA system to study workload in agriculture M. Kauke, I.Hermanns, U. Hoehne-Hückstädt et al. (Switzerland/Germany)
10:40	100313	Workload assessment in agriculture – integration in a work budget system K. Heitkämper, M. Schick, R. Stark et al. (Switzerland)
11:00	100956	Analysis and assessment of workload in different types of milking parlours using the CUELA-System M. Kauke, U. Hoehne-Hückstädt, I. Hermanns et al. (Switzerland/Germany)
11:20	100946	Calculation and planning farm management tasks in pig and dairy farming C. Moriz (Switzerland)
11:40	101008	Development of an experimental system for agricultural work process measurement A. Bechar, A. Ronen (Israel)

Tuesday, June 15 – 10:15 to 12:00

56 Section VI Food Processing (IV)

Moderator: Michael Ngadi (Canada)
Room: 2104AB

Time	Paper #	
10:15		Session Opening
10:20	101218	Effect of thermal pretreatment and batter composition on fat absorption in deep-fat fried batter N. Abdel-Nour, M. Ngadi, A.A. Adedeji (Canada)
10:40	101217	Modelisation of pulsed electric fields for tropical liquid food industrial processing A. Youmssi, G.J. Kayem, F. Sirois et al. (Canada)
11:00	101377	Impact of bread making process on quality parameters, nutrition, parameters and energy demand; key results from the EU-FRESHBAKE project A. Le-Bail (France)
11:20	101183	Shelf-life determination of "queso doble crema" by means of electronic nose D.P. Osorio,C.F. Novoa,L.-F.Gutiérrez(Colombia/Canada)
11:40	101343	Nutritional quality and lipid oxidation of plantain chips from small scale producers in Cameroon: Correlation with frying procedures G. Kansci, E. Fokou, J. Mekoue et al. (Cameroon/France)

Tuesday, June 15 – 10:15 to 12:00

57 Section VI Food Properties (I)

Moderator: Cristina Ratti (Canada)
Room: 2105

Time	Paper #	
10:15		Session Opening
10:20	100242	Thermo-physical and textural properties of meat and carrot alginate particles fabricated for biological validation studies H. F. Hassan, H. S. Ramaswamy (Canada)
10:40	100482	Physico-chemical characteristics of wheat distiller's grains with solubles M. R. Mosqueda, L. G. Tabil (Canada)
11:00	100491	Quality assessment of microwave pasteurized in-shell eggs S.R.S. Dev, Y. Gariepy, V. Orsat (Canada)
11:20	100522	Establishing moisture sorption isotherms of wild mushroom varieties using a dynamic vapor sorption method D. Argyropoulos, A. Rainer, J. Mueller (Germany)
11:40	100581	Prediction of total soluble solids and firmness of carrot based on carrot water content M. Rashidi, B.G. Khabbaz (Iran/Australia)

Tuesday, June 15 – 10:15 to 12:00

58	Section VI	Nutraceutical and Functional Foods–POSTERS
Poster #	Paper #	Moderator: Laurent Bazinet (Canada) Room: 2000D
8	100553	Enhancing the polyphenolic content of elderberries by pulsed ultraviolet treatments R. Murugesan, V. Orsat (Canada)
9	100557	Bioactive gouda cheese powders obtained by spray and freeze-drying H. Ben Abdelkader, C. Ratti (Canada)
10	100614	Microwave assisted drying of flax straw and fibre at controlled temperatures G. R. Nair, K. Eggie, Y. Gariépy et al. (Canada)
11	100819	Optimization of microwave assisted extraction of antioxidants from potato peel A. Singh, K. Sabally, S. Kubow et al. (Canada)
12	100828	Agave juice as an agent for probiotic encapsulation by spray drying C. Cortés-Arminio, A. López-Malo, E. Palou et al. (Mexico)
13	101120	Influence of conjugated linoleic acid (CLA) supplementation on probiotic bacteria viability and sensory properties of stirred yogurt M.R. Barón, R.D. Godoy-Silva, L.-F. Gutiérrez (Colombia)
14	101321	Effect of process unit operation and long term storage on EGCG-enriched tea drink catechin stability L. Bazinet, M. Araya-Farias, A. Doyen et al. (Canada)
15	101108	Microencapsulation of fish oil into cross-linked whey protein matrix R. Safari, R. Kadkhodaee, R. Valizadeh et al. (Iran)

Tuesday, June 15 – 10:15 to 12:00

59	Section VII and WCCA	Information and Communication Technologies (I)
Time	Paper #	Moderator: Miguel Castro Neto (Portugal) Room: 2101
10:15		Session Opening
10:20	100633	A unified pest scouting for area-wide IPM A. Hetzroni, L. Shealtiel-Harpaz, Y. Cohen (Israel)
10:40	101166	The development of tools for managing, monitoring and assessing water stressed conditions in Jamaica J. Richards, C. Madramootoo, A. Trotman (Canada)
11:00	100479	Advanced web outreach techniques: capitalizing on social media, live blogging, and mobile technology to connect with agricultural clientele A. Kleinschmidt (United States)
11:20	101199	Assessing biomass chains feasibility at local level N. Colonna, F. Lupia, V. Pignatelli et al. (Italy)
11:40	100045	To assess the role of farm advisors in informing farmers about reducing wastes in wheat production (case study, Qazvin Province, Iran) S. J. F.Hosseini, V. Birjandi, S. M. Mirdamadi (Iran)

Tuesday, June 15 – 10:15 to 12:00

60	Section VII and WCCA	Wireless Technology, Sensors and Image Analysis – POSTERS
Poster #	Paper #	Moderator: Fedro Zazueta (USA) Room: 2000D
16	100519	Automatic on-line depth control of seeding units using a non-contacting ultrasonic sensor S. Kiani, S. Kamgar, M. Raoufat (Iran)
17	100929	Wireless sensor system for process monitoring of tree seed storage O. Green, J. J. Larsen, O. J. Jørgensen et al. (Denmark)
18	101075	Utilizing a vast and complex wireless communication network in a sustainable "biosystem" for the production of fiber for use in bioenergy, paper and solid wood production N. Mohamed (United States)
19	101222	Development of a SCADA system for access, processing and supervision of data coming from a wireless sensors network in agro-environmental applications L.M.N.Gracia,E.M.Bravo, G.R. Ruiz et al. (Spain/Portugal)
20	100699	Crop rows tracking by detecting individual plants using computer vision to guide farming vehicles G. Ruiz-Ruiz, J. Gómez-Gil, L. M. Navas-Gracia et al. (Spain/Brazil)
21	100916	Automated monitoring of variations of drying conditions in a seed drying facility O. Green, J. J. Larsen, E. F. Kristensen et al. (Denmark)

Tuesday, June 15 – 13:35 to 15:20

Tuesday, June 15 – 14:00 to 15:20

61	AEES	Ecological Engineering – POSTERS
Poster #	Paper #	Moderator: Grant Clark (Canada) Room: 2000D
22	101082	Maximizing the hydrological impact of street trees through sidewalk design S. Lingwood, O.G. Clark, P. Jutras et al. (Canada)
23	101600	The landscape dynamics in Piraí da Serra, Brazil C.H. Rocha, D. Almeida, P.H.W. Neto et al. (Brazil)
24	100455	Emission of CH_4, CO and NH_3 during composting of synthetic food waste in a controlled pilot-scale compost reactor E. Phillip, G. Clark (Canada)
25	100652	Harvesting from our food waste - Ecological treatment system for anaerobic digested food waste slurry H. Lin, S. A.W. Diemont, D. L. Johnson (United States)
26	101609	Biomass production, green house gas abatement and inter-row cropping in a constructed wetland M. Duteau (Canada)
27	101529	SAD-RH: a generic decision support system for water resource management M.D.A.G.M. da Hora, E. Marques, A.F. da Hora (Brazil)
28	101589	Reducing environmental vulnerability and enhancing community resiliency along the Louisiana coast through the coastal sustainability studio J. W. Day, R. Twilley, L. Carter et al. (United States)
29	101472	A methodology to manage environmental effects of crop-shelter coverage C. Arcidiacono, S.M.C. Porto (Italy)
30	101603	Load estimations using LOADEST within agriculturally dominated watersheds across the continental United States R.Z. Johnston, E. Cummings, M. Matlock (United States)
31	101617	Evaluation of attached periphytic algal communities for biofuel feedstock generation H. N. Sandefur, M. D. Matlock, T. A. Costello (United States)
32	100379	Comparison of different plantation modes in ecological restoration in Antaibao opencast mining sites in Shanxi Province, North China J.-T. Zhang, M. Li (China)

Tuesday, June 15 – 13:35 to 15:20

62	IDS	Application of Drainage Models
Time	Paper #	Moderator: Ali Madani (Canada) Room: 205C
13:35		Session Opening
13:40	100137	Potential watershed nitrate load reduction with drainage water management under varied implementation options S. Ale, L. Bowling, M. Youssef et al. (United States)
14:00	100214	Modeling runoff from a small artificially drained agricultural catchment in Norway, using the DRAINMOD model. J. Deelstra, C. Farkas, M. Youssef (Norway/United States)
14:20	100143	Impact of climate change on drainage outflow and water quality in eastern Canada S. Dayyani, S. Prasher, A. Madani et al. (Canada)
14:40	100205	Predicted impacts of climate change on crop production on drained lands in Sweden M. A. Youssef, I. Wesstrom (United States/Sweden)

15:00	100218	Application of SWAP to assess performance of subsurface drainage system under semi-arid monsoon climate A. K. Verma, S. K. Gupta, R. K. Isaac (India)

Tuesday, June 15 – 13:35 to 15:20

63 Section I Irrigation and Development

Moderator: Antonio Brasa Ramos (Spain)
Room: 207

Time	Paper #	
13:35		Session Opening
13:40	101003	Evaluation of irrigation systems by using benchmarking techniques J.I.Córcoles, J.M. Tarjuelo, M.A.Moreno et al. (Spain)
14:00	100670	Revitalizing smallholder irrigation schemes in Limpopo Province of South Africa P. G. De Witt (Africa)
14:20	100176	Use of agricultural census data for the estimation of irrigation water consumption at farm level F. Lupia, I. Namdarian, F. D. Santis (Italy)
14:40	100901	Fostering irrigation practices in the humid tropics of (southwestern) Nigeria to sustain life and development M.O. Alatise (Nigeria)
15:00	101288	Overcoming food shortage through improved irrigation strategy Z. Ul-Haque (Pakistan)

Tuesday, June 15 – 13:35 to 15:20

64 Section I Water and Crop Response – POSTERS

Moderator: Jose Manuel Monteiro Gonçalves (Portugal)
Room: 2000D

Poster #	Paper #	
33	100210	Effect of water stress on yield and yield components of two wheat cultivars M. Najmaei, A. Soleymani, A. R. Golparvar (Iran)
34	100294	Effect of water stress on water use efficiency and yield of nigella sativa in Kermanshah Province in the west of Iran H. Ghamarnia (Iran)
35	100376	Crop coefficient of cowpea bean in Piaui State, Brazil E. A. Bastos, A. S. A. Júnior, V. M. Ferreira et al. (Brazil)
36	100567	Method to supress or remove blue-green algae in the pond of large area by micro bubbles T. Nakashima, Y. Hirata (Japan)
37	101126	Irrigation system management assisted by thermal imagery and spatial statistics S.J. Thomson, C.M. Ouellet-Plamondon, S.L. Defauw et al. (United States/United Kingdom)
38	101127	Cut chrysanthemum (Chrysanthemum morifolium Ramat.) irrigation schudeling under greenhouse conditions M.F. De Farias, J.C.C. Saad (Brazil)
39	100715	Irrigation management in real time for arugula crop in Sergipe A. N. Do Vasco, A. De O. A. Netto, R. Silva-Mann et al. (Brazil)
40	101637	Several groundwater levels affecting sorghum plants in protected environment A.E. Klar, A.A. Tanaka (Brazil)
41	100562	Effects of super absorbent polymers application methods on carrot germination and growth J. Yu, H. Liu, J. Shi et al. (China/Israel)

Tuesday, June 15 – 13:35 to 15:20

65 Section II Methods to Quantify Emissions in Naturally Ventilated Buildings (II)

Moderator: Daniel Berckmans (Belgium) Room: 204A

Time	Paper #	
13:35		Session Opening
13:40	100773	Intermittent measurement technique to estimate ammonia emission from manure storage A.Youssef,S. E. Özcan, F. Guiziou et al. (Belgium/France)
14:00	100974	Tracer gas technique in comparison with other techniques for ventilation rate measurements through naturally ventilated barns A.Kiwan,R.Brunsch,S. E. Özcan et al. (Germany/Belgium)
14:20	101061	Measurement method of ventilation rate with tracer gas method in open type livestock houses A. Ikeguchi, H. Moriyama (Japan)
14:40	100624	Development and testing of technical measures for the abatement of PM10 emissions from poultry housing N. Ogink, A. Aarnink, J. Mosquera et al. (Netherlands)
15:00	-	Open discussion – Emissions from natural ventilated buildings Atsuo Ikeguchi (Japan)

Tuesday, June 15 – 13:35 to 15:20

66 Section II Cattle (II)

Moderator: Alfred Marquis (Canada)
Room: 205B

Time	Paper #	
13:35		Session Opening
13:40	100764	Potential soil contamination under free stall dairy barn using earthen base stalls with sand bedding Y. Choinière (Canada)
14:00	101055	A farm system approach to analyze greenhouse gas (GHG) mitigation strategies for ruminant production systems A. Meyer-Aurich,W.K. Berg, S.Schattauer et al. (Germany)
14:20	101187	Evaluation of injection sites of thermal sensing transponders in cattle for automatic body core temperature recording H. Georg, A. Schwalm, G. Ude (Germany)
14:40	101506	Automatic and frequency-programmable systems for feeding TMR: State of the art and available technologies C. Bisaglia, F. Nydegger, A. Grothmann et al. (Italy/Switzerland/Netherlands)
15:00	100963	Milking technology on modern dairy farms - assessment from the user's perspective M. Kauke, F. Korth, P. Savary et al. (Switzerland)

Tuesday, June 15 – 13:35 to 15:20

67 Section II-B Monitoring and Technology for Aquaculture

Moderator: Ed Aneshansley (USA)
Room: 205A

Time	Paper #	
13:35		Session Opening
13:40	100303	The importance of fish neurohormonal response reared under recirculating water systems: a review S. E. Papoutsoglou (Greece)
14:00	101460	The "virtual-cage culture": Controlling and harvesting fish using behavioural conditioning B. Zion, A. Barki, Y. Grinshpon et al. (Israel)
14:20	101551	In vivo flatfish size and weight monitoring by image analysis E. Thiessen, E. Hartung (Germany)
14:40	101615	Effects of ozone and water exchange rates on water quality and rainbow trout, Oncorhynchus mykiss, performance in replicated water reuse aquaculture systems J. Davidson, S. Summerfelt, C. Good et al. (United States)
15:00	101056	Sustainable environmental management for tropical floating net cage mariculture, a modelling approach S. A. Van Der Wulp, K. R. Niederndorfer, K-J Hesse et al. (Germany/Indonesia)

Tuesday, June 15 – 13:35 to 15:20

68 Section III Crop Protection and Weed Control (II)

Moderator: Cristiano Baldoin (Italy)
Room: 203

Time	Paper #	
13:35		Session Opening
13:40	100785	UV-induced fluorescence for discriminating weeds from maize B. Panneton, S. Guillaume, G. Samson et al. (Canada/France)
14:00	100473	Technical approach for row crop seeding in square to improve mechanical weed control efficiency P. S. Lammers, H. Kam, O. Schmittmann (Germany)

14:20	100794	Development of a machine vision system for weed mapping M. C. Da Silva Júnior, F. D. A. De Carvalho Pinto, G. R. Ruiz et al. (Brazil/Spain)
14:40	101091	Innovative strategies for physical weed control on hard surfaces in Central Italy: Results achieved in two different cities A. Peruzzi, L. Lulli, M. Fontanelli et al. (Italy)
15:00	100427	Weed control by water steam using a self-propelled machine equipped with a condensation chamber C. Baldoin, I. Sartorato, D. Friso et al. (Italy)

Tuesday, June 15 – 13:35 to 15:20

69	Section III	Sensors and Precision Agriculture – POSTERS
Poster #	Paper #	Moderator: Noboru Noguchi (Japan) Room: 2000D
42	100428	Mapping of soil variability for increasing precision with managed drought stress phenotyping G. Romano, W. Spreer, J. Cairns et al. (Germany/Mexico)
43	101136	Management zone definition for coffee production system by using soil apparent electrical conductivity D.S.M. Valente, D.M. de Queiroz et al. (Brazil)
44	101419	Remote sensor networks for protected chrysanthemum production H.K. Noh, S.O. Chung (Republic Of Korea)
45	101147	Development of a new system for measuring the coefficient of dynamic friction of agricultural crops J. Razavi, E. Bagvand, A. Hemmat (Iran)
46	101150	Coefficient of restitution of sugarcane billets measurement using an instrumented pendulum system J. Razavi, E. Bagvand, A. Hemmat (Iran)
47	101397	Nitrogen estimation of oilseed rape using spad and Vis/NIR spectroscopy Y. Shao, Y. He (China)
48	100504	Effects of different tillage systems on some soil properties, crop yield and time/fuel consumption for sesame Z. B. Barut, M. M. Turgut, A. Özmerzi (Turkey)
49	101261	High voltage electric field effects on structure and biological characteristics of barley seeds J. Khazaei, E. Aliabadi, A.A. Shayegani (Iran)

Tuesday, June 15 – 13:35 to 15:20

70	Section IV	Combustion and GHG
Time	Paper #	Moderator: Amit Kumar (Canada) Room: 2102B
13:35		Session Opening
13:40	100457	A review of standards related to biomass combustion J. Villeneuve, P. Savoie (Canada)
14:00	100459	Handling of corn stover bales for combustion in small and large furnaces R. Morissette, P. Savoie, J. Villeneuve (Canada)
14:20	100804	Power from triticale straw M. Dassanayake, A. Kumar (Canada)
14:40	100941	Greenhouse gas mitigation potential of short-rotation-coppice based generation of electricity in Germany A. Hansen, A. M.-A., J. Kern et al. (Germany)
15:00	100434	Energy and greenhouse gas emissions of Australian cotton: from field to fabric B. G. Khabbaz, G. Chen, C. Baillie (Australia)

Tuesday, June 15 – 13:35 to 15:20

71	Section V	Crop and Biomass Logistics (I)
Time	Paper #	Moderator: Elisabeth Quendler (Austria) Room: 204B
13:35		Session Opening
13:40	100962	Calculation of transportation energy for biomass collection G. Kanai, K. Takekura, H. Kato et al. (Japan)
14:00	100905	Agricultural fleet management: An operational research approach D. D. Bochtis, C. G. Sørensen (Denmark)
14:20	101347	Interfacing feedstock logsitics with bioenergy conversion S. Sokhansanj (Canada)
14:40	100374	Energy expense by logistics within sugarcane's energy production chain -two case studies T.L. Romanelli, R. Berruto, P. Busato et al. (Brazil/Italy)
15:00	101018	Technological and organizational development potentialities for grain logistic in Germany H. Bernhardt, W. Lixfeld, D. Engelhardt (Germany)

Tuesday, June 15 – 13:35 to 15:20

72	Section VI	Drying and Dehydration (I)
Time	Paper #	Moderator: Paolo Menesatti (Italy) Room: 2104AB
13:35		Session Opening
13:40	100446	Dryer evaluation to optimize small-scale litchi processing in northern Thailand M. Precoppe, M. Nagle, S. Janjai et al. (Germany/Thailand)
14:00	100464	Drying characteristics and lysine content of wheat distillers grains with solubles under three drying methods M. R. P. Mosqueda, L. G. Tabil, jr (Canada)
14:20	100540	Reducing fossil energy consumption of a belt dryer by using biogas waste heat M. Böhner, P. Senckenberg, A. Heindl et al. (Germany)
14:40	100664	Shrinkage effect on moisture diffusivity calculation during superheated steam drying of distiller's spent grain M. Zielinska, S. Cenkowski (Canada)
15:00	100935	Evaluation of operative aspects of a heat pump to dry chestnuts R. Guidetti, M. Fiala, R. Beghi et al. (Italy)

Tuesday, June 15 – 13:35 to 15:20

73	Section VI	Food Properties (II)
Time	Paper #	Moderator: Damien de Halleux (Canada) Room: 2105
13:35		Session Opening
13:40	100665	Shrinkage, density and porosity changes during superheated steam drying of distiller's spent grain M. Zielinska, S. Cenkowski (Canada)
14:00	100843	Moisture-dependent color characteristics of walnuts R. Khir, Z. Pan, G. G. Atungulu et al. (USA/Egypt/China)
14:20	101536	Sensory evaluation of standard hard cheese minas added with Brazil nut – a high antioxidant delicacy C. Pereira, C.A.P. Schmidt, R.Y. Ishihara et al. (Brazil)
14:40	100534	Preliminary study on the preparation of a new flocculant and the application on treatment of potato starch wastewater X. An, L. Shujun, L. Yaling et al. (China)
15:00	100609	Properties of coconut (Cocos nucifera L.) relevant to its dehusking A.F. Alonge, W.B. Adetunji (Nigeria)

Tuesday, June 15 – 13:35 to 15:20

74	Section VII and WCCA	Information and Communication Technologies (II)
Time	Paper #	Moderator: Elsa S. Sepulveda Bustos (USA) Room: 2101
13:35		Session Opening
13:40	100741	Utilization of plug-in and content management system (CMS) as tools for developing National Biosafety Clearing House (BCH) applications: Cases in Asia-Pacific and Latin American countries R. V. Maningas (Philippines)
14:00	100970	Formal representation of agricultural production standards E. Nash, J. Wiebensohn, R. Nikkilä et al. (Germany/Finland/Greece)

14:20	101196	Towards a framework for planning and designing of rural knowledge centres G. Dileepkumar, S. Chaudhary, K.A. Sai et al. (India/United States)
14:40	101200	Reusing content with reusable learning objects (RLOs): An approach for addressing content issues of agricultural education and extension G. Dileepkumar, S. Chaudhary, K.A. Sai et al. (India/USA)
15:00	101638	A multi-lingual translation engine for translating ration formulation programs from English to Spanish, Portuguese, Italian, German, and French languages A. Ahmadi, P.H. Robinson, P. Chilibroste (United States)

Tuesday, June 15 – 15:35 to 17:20

Tuesday, June 15 – 15:35 to 17:20

75 AEES Ecological Engineering Principles and Practices

Moderator: Stephanie Lansing (USA)
Room: 206A

Time	Paper #	
15:35		Session Opening
15:40	100711	Investigating case-based reasoning for ecosystem design T. R. Lanphere, O. G. Clark (United States)
16:00	101225	Design challenges to the integration of ecosystem services into agricultural landscapes in arid ecosystems W.T. Stringfellow (United States)
16:20	101192	Creating renewable energy using ecological engineering principles S. Lansing (United States)
16:40	100339	Development of a framework for sustainable remediation decision making (SRDSS) I. S. Dunmade (Canada)
17:00	101613	Engineering autonomy in an algal turf scrubber techno-ecosystem. D. M. Blersch, P. Kangas (United States)

Tuesday, June 15 – 15:35 to 17:20

76 IDS Modeling Drainage Systems

Moderator: Ramesh Rudra (Canada)
Room: 205C

Time	Paper #	
15:35		Session Opening
15:40	100241	The relationship between watershed physiography, tile flow, and streamflow characteristics R. P. Rudra, S. I. Ahmed, M. Khayer et al. (Canada)
16:00	100258	Hydrologic modelling of an agricultural drained micro-watershed: Performance analysis of coupled surface water/groundwater models M. Muma, A.N. Rousseau, C. Paniconi et al. (Canada/France)
16:20	101372	Empty drain and the water level at midway between the drains. Aspects regarding management P. Castanheira (Portugal)
16:40	101429	New software for the optimal design of drainage network in steadystate sub-irrigation case study: Greoni-Ticvanu Mare drainage arrangement M.T. Eugen, B. Marinela, C. Laura et al. (Romania)
17:00	100147	Surface runoff and soil physical properties as affected by subsurface drainage improvement of a heavy clay soil L. Alakukku, E. Turtola et al. (Finland)

Tuesday, June 15 – 15:35 to 17:20

77 IDS Drainage Topics – POSTERS

Moderator: Gary Sands (USA)
Room: 2000D

Poster #	Paper #	
50	100071	A comparison of DRAINMOD and SWAT for surface runoff and subsurface drainage flow prediction at the field scale for a cold climate M. Chikhaoui, C. Madramootoo, A. Gollamudi (Canada)
51	100086	Performance of DRAINWAT model in assessing the drainage discharge from a small watershed in the Po valley (Northern Italy) M. Borin, T. Bisol, D. M. Amatya (Italy)
52	100072	Assessment of climate change impact on the subsurface drainage flow in the Pike River watershed using the SWAT model M. Chikhaoui, C. Gombault, C. Madramootoo et al. (Canada)
53	100116	Performance of biodrainage systems in arid and semiarid areas with salt accumulation in soils S. Akram, H. Liaghat (Iran)
54	100155	Nutrient load from two drainage systems on clay soil P. Vakkilainen, L. Alakukku, M. Myllys et al. (Finland)
55	100161	The role of curli and cellulose in the transport and survival of Escherichia coli on a central New York dairy farm A. E. Salvucci, M. Elton, J. D. Siler et al. (United States)
56	100204	Mapping soil moisture content variability using electromagnetic induction method A.A.Farooque, Q. Zaman, A. Schumann et al. (Canada/USA)
57	101484	Impact of shallow water table depths on surface irrigation requirements and crop performance Z. Ulhaque (Pakistan)
58	100129	Sustainability of biodrainage systems considering declining of evapotranspiration rate of trees due to soil salinization H. Liaghat, M. Mashal (Iran)
59	100219	Impact on drainage water quality from amending agricultural soils in Nova Scotia with an alkaline stabilized biosolid G.W.Price, A. Madani, J.D. Gillis (Canada)
60	100095	Water balance and corn yield under different water table management scenarios in southern Québec A. Singh, C. A. Madramootoo, D. L. Smith (Canada)
61	100192	An initial assessment of a wetland-reservoir wastewater treatment and reuse system receiving agricultural drainage water in Nova Scotia M. Haverstock, A. Madani, R. Gordon et al. (Canada)
62	100145	Suitable buffer strip width along rivers for nitrate N removal from paddy field drainage Z. Zhan-Yu 1, C. Yi-Xia, Z. Cheng-Li et al. (China)
63	100253	Implications of agricultural drainage water reuse: I. crop yield and water productivity A. A.-A. Aboukeira, A. El-Shafie, M. H. Rady et al. (United States/Egypt)
64	100191	Implications of agricultural drainage water reuse: II. soil properties A. A.-A. Aboukeira, A. El-Shafie, M. H. Rady (USA/Egypt)
65	101668	Drainage control system (DCS) V. Machabee (Canada)

Tuesday, June 15 – 15:35 to 17:20

78 Section I Modeling Water Use for Crop Production

Moderator: Mario Falciai (Italy)
Room: 207

Time	Paper #	
15:35		Session Opening
15:40	101193	Application of mathematic models of water in irrigated bean crop under no-tillage system D.R. Bizari, E.E. Matsura, M. Mesquita (Brazil)
16:00	101050	Development of reference evapotranspiration models with limited data by using artificial neural networks structures A. Martínez, M.A. Moreno, J.F. Ortega et al. (Spain)

16:20	101164	The dual crop coefficient approach: Application of the SimDualKc model to winter wheat in North China Plain Z. Nana, L. Yu, C. Jiabing et al. (China/Portugal)
16:40	100501	Simulation of site-specific irrigation control strategies with sparse input data A. C. Mccarthy, N. H. Hancock, S. R. Raine (Australia)
17:00	100362	The relation between non-irrigated planting at sandy land and micrometeorological alleviation in Ningxia, China T. Maki (Japan)

Tuesday, June 15 – 15:35 to 17:20

79 Section II Reduction of Ammonia and Odour Emissions (I)

Time	Paper #	Moderator: Theo Demmers (UK) Room: 204A
15:35		Session Opening
15:40	100443	Reducing ammonia release in a floor housing system for laying hens by daily removal of manure below a perforated floor G. Gustafsson (Sweden)
16:00	100616	Impact of the manure removal from slatted floor in a dairy barn on the ammonia emission S.K. Retz, H. Georg, S. Godbout et al. (Germany/Canada)
16:20	100644	Dairy manure amendment effects on odor and gas emissions E. F. Wheeler, M.A .A. Adviento-Borbe, R.C.Brandt et al. (USA)
16:40	100747	Odour control on pig farms by biofiltration G. Buelna, N. Turgeon, R. Dubé (Canada)
17:00	101025	A new design for highly efficient partial pit ventilation P. Pedersen, T. L. Jensen (Denmark)

Tuesday, June 15 – 15:35 to 17:20

80 Section II Manure Handling

Time	Paper #	Moderator: Frederic Pelletier (Canada) Room: 205B
15:35		Session Opening
15:40	100442	Flush systems for dairy manure removal: the Alley roughness value E. Bresci, P. Ferrari, A. Giacomin, M. Barbari (Italy)
16:00	100528	Managing residual phosphorus and nitrogen from treated swine slurry using a disposal field: Behaviour over four years of on-site operation R. Dubé, G. Bellemare, G. Buelna et al. (Canada)
16:20	100547	Electro-separation process for treating liquid animal manures S.-P. Guertin, D. Massé, F. Lamarche (Canada)
16:40	101517	Environmental impacts of manure management strategies in pig production F. Pelletier, S. Godbout, S.P. Lemay et al. (Canada)
17:00	101057	Evaluating the performance of vegetative treatment systems on open beef feedlots in the Midwestern United States B. J. Bond, R. T. Burns, C. Henry et al. (United States)

Tuesday, June 15 – 15:35 to 17:20

81 Section II-B Aquaculture – POSTERS

Poster #	Paper #	Moderator: Eiko Thiessen (Germany) Room: 2000D
66	100955	Aquaculture in greenhouse M.C.G. Quiles, G. L. Diaz, M.C.M. Rodriguez (Spain)
67	101054	An innovative colorimetric calibration method used to quantify differences among wild and reared gilthead seabream (Sparus Aurata, Linnaeus 1758) C. Costa, F. Antonucci, F. Pallottino et al. (Italy)
68	101592	Québec driven pilot-scale cultivation of spotted wolffish (Anarhichas minor) N.R. Le François, F. Dufresne, D. Chabot et al. (Canada)
69	101657	Monitoring and modeling phosphorus contributions in a freshwater lake with cage-aquaculture J.E. Milne, R.D. Moccia (Canada)

Tuesday, June 15 – 15:35 to 17:20

82 Section III Planting, Seeding and Crop Quality

Time	Paper #	Moderator: Neil McLaughlin (Canada) Room: 205A
15:35		Session Opening
15:40	101037	Design and evaluation of a jab planter J. Smithers, L. Lagrange, B. Fraser et al. (South Africa)
16:00	101142	Determination of forward speed effect on planting uniformity in a sugarcane billet planter J. Razavi, M. Namjoo (Iran)
16:20	101280	Reducing the dispersion of seed coating particles containing neonicotinoids in maize seeding D. Pessina, D. Facchinetti (Italy)
16:40	100422	The design and experimental study of a testing stand for pneumatic seed metering device W. Z. Liu (China)
17 :00	101043	Determiniation of crop quality with different types of sugar beet harvesters A. Beyaz, A. Colak, B. Eminoglu et al. (Turkey)

Tuesday, June 15 – 15:35 to 17:20

83 Section III Crop Protection and Weed Control (III)

Time	Paper #	Moderator: Bernard Panneton (Canada) Room: 203
15:35		Session Opening
15:40	100458	Variable rate technology for herbicide application on railways U. R. Antuniassi, E. D. Velini, H. C. Nogueira et al. (Brazil)
16:00	100947	An approach for pesticide loss estimation adapted to field crops in Mediterranean conditions H. Bahrouni, C. Sinfort, E. Hamza (Tunisia/France)
16:20	100295	Spot-application of pesticide using variable rate sprayer in wild blueberry Q. U. Zaman, A. W. Schumann et al. (Canada/USA)
16:40	100077	Evaluation of backpack sprayers in the herbicide application in a Brazilian forest R. G. Viana, M. S. Machado, L. R. Ferreira et al. (Brazil)
17:00	100789	Weed cover on and between corn rows implications for real-time weed detection L. Longchamps, B. Panneton, M.-J. Simard et al. (Canada)

Tuesday, June 15 – 15:35 to 17:20

84 Section IV Biochar and Energy

Time	Paper #	Moderator: Axel Munack (Germany) Room: 2102B
15:35		Session Opening
15:40	100296	Utilization of residual biochar produced from the pyrolysis of energy crops for soil enrichment G. Pilon, J.-M. Lavoie (Canada)
16:00	100429	Material and operating variables affecting the physical quality of biomass briquettes Y. Song, J. S. Tumuluru, K. L. Iroba et al. (China/Canada)
16:20	100827	Biochar production for carbon sequestration J. Thakkar, A. Kumar (Canada)
16:40	101374	Vacuum pyrolysis of swine manure: Biochar production and characteristics M. Verma, S. Godbout, J.P. Larouche et al. (Canada)
17:00	101421	Characteristics of paddy operations with biodiesel fuelled tractor Y. Kim, S.H. Park, C. K. Kim et al. (Republic Of Korea)

Tuesday, June 15 – 15:35 to 17:20

85 Section V Crop and Biomass Logistics (II)

Time	Paper #	Moderator: Pietro Piccarolo (Italy) Room: 204B
15:35		Session Opening
15:40	100927	Corporate harvest of grass silage - square bales as an alternative to field choppers and crop loaders? C. Moriz (Switzerland)
16:00	101239	Modeling corn stover harvest operations R. Berruto, P. Busato, P.-L. Lizotte et al. (Italy/Canada)
16:20	100756	Agricultural fleet management: a systems approach C. G. Sorensen, D. D. Bochtis (Denmark)

16:40	101542	Prediction of repair and maintenance costs of two-wheel drive tractors in Iran I. Ranjbar, M. Rashidi, B.G. Khabbaz (Iran/Australia)

Tuesday, June 15 – 15:35 to 17:20

86 Section VI Drying and Dehydration (II)

Moderator: Michèle Marcotte (Canada)
Room: 2104AB

Time	Paper #	
15:35		Session Opening
15:40	100966	Evaluation of coffee drying costs: Pre-drying on a concrete terrace and complementary drying in a concurrent and countercurrent flow dryer S. Martin, J. N. Da Silva, S. F. Soria Galvarro et al. (Brazil)
16:00	101172	Reconditioning by filtration with earth diatomaceous and reusing the sucrose syrup for osmotic dehydration of peaches S.P.M. Germer, M.R. Queiroz, J.M. Aguirre et al. (Brazil)
16:20	101231	Effects of microwave drying and cooking on the hardness and stickiness of red lentils A. Opoku, L. Tabil, V. Meda (Canada)
16:40	101498	Skim milk cryoconcentration and assessment of its physico-chemical, thermal and functional properties M. Aïder (Canada)
17:00	101030	Study on the parameters of high pulsed electrical field on fruit and vegetable as pre-processing for the vacuum freeze-drying Y. Wu, Y. Guo (China)

Tuesday, June 15 – 15:35 to 17:20

87 Section VI Spectroscopy and Image Analysis (I)

Moderator: Muhammad Shahin (Canada)
Room: 2105

Time	Paper #	
15:35		Session Opening
15:40	100280	Laser light backscattering for monitoring changes in moisture content during drying of apples G. Romano, D. Argyropoulos, J. Müller (Germany)
16:00	100448	Estimation of tomato nutritional status by Vis-NIR portable spectrophotometric system V. Ulissi, P. Benincasa, M. Guiducci et al. (Italy)
16:20	100437	Estimation of egg weight by machine vision and neural networks techniques M. H. Raoufat, V. Asadi (Iran)

Tuesday, June 15 – 15:35 to 17:20

88 Section VI Post Harvest and Fresh Produce – POSTERS

Moderator: Clément Vigneault (Canada) Room: 2000D

Poster #	Paper #	
70	101232	Effects of roasting temperatures and storage on the quality of red lentil A. Opoku, L. Tabil (Canada)
71	101233	Storage and quality features of carrots and corn grown under organic and conventional agricultural practices A. Opoku, V. Meda, J. Wahab (Canada)
72	100580	A simple method for measurement of Poisson's ratio for tissue of agricultural products Y. Ogawa, M. Matsuura, N. Yamamoto et al. (Japan)
73	100786	Modeling of rough rice drying kinetics using artificial neural network M. Tohidi, M. Sadeghi, S. R. Mousavi (Iran)
74	100795	Conceptualization design and evaluation of a hyperbaric respirometer B. Goyette, C.Vigneault, N. Wang et al. (Canada)
75	101115	Texture evaluation affected by physical characteristics of carrots during storage P.C. Corrêa, L.R.L. Farinha, G.H.H. Oliveira et al. (Brazil)
76	101628	Investigation of shelled corn drying in a microwave assisted fluidized bed dryer using artificial neural network A. Zomorodian, L. Momenzadeh, D. Mowla (Iran)
77	100826	Intelligent control based on expert system for grain drying H. Zhu, W. Wu, Y. Lan et al. (China)

Tuesday, June 15 – 15:35 to 17:20

89 Section VII and WCCA Wireless Technology (I)

Moderator: Margarita Ruiz Altisent (Spain)
Room: 2101

Time	Paper #	
15:35		Session Opening
15:40	100502	Remote access of ISOBUS workbench for the IsoAgLib study and implementation R. R. D. Pereira, A. J. V. Porto, R. Y. Inamasu (Brazil)
16:00	100712	Exploitation of wireless telemetry for livestock condition monitoring C. Di, T.-T. Wu, H. G. Goh et al. (United Kingdom)
16:20	100698	Wireless sensor networks for environmental monitoring in precision viticulture A. B. Ramos, F. M. Riquelme, F. M. Garcia et al. (Spain)
16:40	100922	A model to predict calves' lying time with wireless 3-dimensional accelerometer collar P.Tamminen,L. Hänninen, A.-H. Hokkanen et al. (Finland)

Tuesday, June 15 – 16:30 to 22:00

CIGR General Assembly (16:30 – 17:30) followed by CIGR 80th Anniversary Celebration and Awards Ceremony (17:30 – 18:30) and Awards Banquet (19:00 – 21:30) – see details on page 9.

Wednesday, June 16 – 8:15 to 10:00

Wednesday, June 16 – 8:15 to 10:00

90 AEES Trees and Crops for Sustainability (I)

Moderator: Stewart Diemont (USA)
Room: 205C

Time	Paper #	
8:15		Session Opening
8:20	101550	Modeling city tree growth with artificial intelligence and multivariate statistics for sustainable urban ecosystems P. Jutras, S.O. Prasher (Canada)
8:40	101087	Biodiversity of managed forests surrounding the Calakmul Biosphere Reserve in Mexico J. Bohn, S.A.W. Diemont, J. Mendoza (USA / Mexico)
9:00	101040	Short rotation woody biomass production as option for the restoration of post-mining areas in Lower Lusatia C. Böhm, A. Quinkenstein, D. Freese et al. (Germany)
9:20	101480	How to manage legume-rhizobia N_2-fixing symbioses as ecological engineers? J.-J. Drevon, H. Hamza, B. Jaillard et al. (France/Egypt/Spain)
9:40	101602	Role of tao (Belotia mexicana) in the traditional Lacandon Maya shifting cultivation ecosystem K. Cheng, S. Diemont, A. Drew (United States)

Wednesday, June 16 – 8:15 to 10:00

91 Nano Nanotechnologies for Food Treatments

Moderator: Suresh Neethirajan (Canada)
Room: 205A

Time	Paper #	
8:15		Session Opening
8:20	100287	Conjugated linoleic acid formation by hydrogenation/isomerization of safflower oil over bifunctional novel structured catalyst N. Chorfa, S. Hamoudi, J. Arul et al. (Canada)
8:40	100304	Convergence – big potential: Microfluidics for food, agriculture and biosystems industries S. Neethirajan, F. Lin (Canada)
9:00	100661	Separation of benzoic acid from cranberry juice by use of nanofiltration membranes D. Q. Lai, N. Tagashira, S. Hagiwara et al. (Japan)

9:20	101402	Improvement of nutritional benefits in foods by incorporation of starch-antioxidant assemblies P. Le Bail (France)
9:40	101357	Stability of nano-emulsified lycopene under thermal processing J. Shi, S.J. Xue (Canada)

Wednesday, June 16 – 8:15 to 10:00

92 Section I Management of Flood, Drainage and Ground Water (joint with IDS)

Moderator: Mauro Greppi (Italy)
Room: 206A

Time	Paper #	
8:15		Session Opening
8:20	100549	Mathematical models for flood management: Efficiency and reliability D. Dewrachien, V. Garattini, S. Mambretti (Italy)
8:40	100627	Soil bioengineering techniques in flood risk mitigation in Friuli Venezia Region S. Sanna (Italy)
9:00	100159	Storage and reuse of drainage water I. Wesström, A. Joel (Sweden)
9:20	100684	Modelling the groundwater dynamics as influenced by water management in Hetao irrigation district, Upper Yellow River basin, and predicting impacts of foreseen water use and savings Xu Xu, G. Huang, Z. Qu et al. (China)

Wednesday, June 16 – 8:15 to 10:00

93 Section I Modeling Water in Soils and Crops – POSTERS

Moderator: Robert Broughton (Canada)
Room: 2000D

Poster #	Paper #	
1	100622	Assessing different leaching models in SE Iran F. A. Pour (Iran)
2	100654	Prediction of the max flow for the model SASIS: Sensibility to the empirical parameters of the form of the furrow R. V. Pordeus, C. A. V. De Azevedo et al. (Brazil)
3	100666	Studying different type of leaching models in two pilots located at South East of Khoozestan Province F. Allahyari, K. Mohsenifar, S. Haghighat et al. (Iran)
4	100695	Simulation of the irrigation for furrow for the model SASIS: Sensibility to the factors of space consideration and storm R. V. Pordeus, C. A. V. De Azevedo et al. (Brazil)
5	100746	A meta-analysis of weather effects on corn nitrogen fertilization requirements Min Xie, Nicolas Tremblay, Zhanmin Wei (Canada/China)
6	100890	Monitoring of dust emission and development of a CFD model to predict the dispersion of fugitive dust at a reclaimed land H.-S. Hwang, I.-B. Lee, I.-H. Seo et al. (Korea)
7	101378	Affect of drought on pollution of Lenj station of Zayandehrood River by artificial neural network (ANN) K. Mohsenifar, E. Pazira, N. Mohsenifar et al. (Iran)

Wednesday, June 16 – 8:15 to 10:00

94 Section II Simulation of Aerosol, Gas and Emission

Moderator: Bjarne Bjerg (Denmark) Room: 204A

Time	Paper #	
8:15		Session Opening
8:20	100430	Performance simulation of high volume low speed fans in a free stall barn W. Yan, D. Barker, Y. Sun, Y. Zhang et al. (United States)
8:40	100548	A simulation model to predict the internal climatic conditions in livestock houses as a tool for improving the building design and management P. Liberati, P. Zappavigna (Italy)
9:00	100870	CFD modeling of livestock odor dispersion on complex topography S.-H. Kwon, S.-W. Hong, I.-B. Lee et al. (Korea)
9:20	100888	Aerodynamic analysis of air pollutants in pig farms using CFD technology J-S. Choi, I-B. Lee, S-W. Hong et al. (Korea)
9:40	100908	Methodology of analyzing ventilation efficiencies based on "age of air" theory using CFD technology K.-S. Kwon,I.-B.Lee,H.-S.Hwang et al. (Korea/Philippines)

Wednesday, June 16 – 8:15 to 10:00

95 Section II Reduction of Ammonia and Odour Emission (II)

Moderator: Larry Dean Jacobson (USA)
Room: 205B

Time	Paper #	
8:15		Session Opening
8:20	101163	Ammonia reduction and maintenance costs for old air cleaning systems and slurry acidification systems M. Lyngbye (Denmark)
8:40	101260	Biofilter combined with a biotrickling filter and a chemical air scrubber A.L. Riis (Denmark)
9:00	101262	Reducing odour and ammonia emission by cooling inlet air in a farrowing facility A.L. Riis, T.L. Jensen, P. Pedersen (Denmark)
9:20	101416	Reduction of odour emissions from swine buildings: Comparison of three reduction techniques S. Godbout, L. Hamelin, S.P. Lemay et al. (Canada/Denmark)
9:40	101640	A sequential wet scrubber using re-circulated and biological processed water for purification of discharge air from pig houses P. Kai, H. Takai, P.J. Dahl et al. (Denmark/Japan)

Wednesday, June 16 – 8:15 to 10:00

96 Section II Animal Behaviour, Housing and Welfare – POSTERS

Moderator: Martin Belzile (Canada)
Room: 2000D

Poster #	Paper #	
8	100321	Disinfection efficiency and prevention of mastitis by slightly acidic electrolyzed water in a dairy farm S. Nan, C. Wang, B. Li et al. (China)
9	100505	Influence of cooling systems on the behaviour of dairy cows housed in cubicle barn M. Barbari, L. Leso, G. Rossi et al. (Italy)
10	101028	Effects of habituating heifers to the milking parlour routine prior to calving and effects of the rearing method on heart rates of heifers during milking A. Schwalm, H. Georg, G. Ude (Germany)
11	100182	Use of water in swine production in Catalonia-Spain J. M. Viana, D. B. Gaspa, M. R. T. Esmatges et al. (Brazil/Spain)
12	100183	Management of resource, waste and implementation of strategies in pig production in Catalonia-Spain J. M. Viana, D. B. Gaspa, M. R. T. Esmatges et al. (Brazil/Spain)
13	100438	Gait and force analysis methods applied in pig gait research C. Nilsson, S.Pinzke, H. V. Wachenfelt (Sweden)
14	101137	Environmental comfort of early weaned piglets in different heating systems J. Sarubbi, L.A. Rossi, D.J. Moura et al. (Brazil)
15	101516	Predicting ventilation rates in hybrid ventilated pig housing facilities F. Pelletier, S.P. Lemay, J.J.R. Feddes et al. (Canada)
16	100469	Daily pattern of sound level in a caged hens facility as an indicator of daily activity variation F. Estellés, E. Adell, A. Torres (Spain)
17	101139	Effect of construction and environmental factors on the performance of heating and cooling systems for poultry production M.C. de C. Guimarães, F. da C. Baêtaet al. (Brazil)
18	101077	Thermal disinfection of poultry grow-out facilities in Central-Northern Italy M. Raffaelli, M. Fontanelli, C. Frasconi et al. (Italy)

Wednesday, June 16 – 8:15 to 10:00

97	Section III	Harvest of Fruits and Seeds
Time	Paper #	Moderator: Roger Chagnon (Canada) Room: 203
8:15		Session Opening
8:20	100348	The effects of shaking frequency and amplitude on detachment of Estahban dried fig (Ficus carica cv. Sabz) M. Loghavi, F. Khorsandi, S. Kamgar et al. (Iran)
8:40	100465	Efficient harvesting of haskap berries in Japan L. Fu, H. Okamoto, Y. Hoshino et al. (Japan)
9:00	100714	Determination of the damping coefficient of coffee branches using image processing techniques D. M. De Queiroz, G. P. Villibor, F. De A. C. Pinto et al. (Brazil)
9:20	101499	Red apple juice – development of a new, innovative product R.H.P. Scheyer, H.-P. Schwarz, P. Braun (Germany)

Wednesday, June 16 – 8:15 to 10:00

98	Section IV	Renewable Energy and Assessment
Time	Paper #	Moderator: Guangnan Chen (Australia) Room: 2102B
8:15		Session Opening
8:20	101116	Investigating design criteria to build a performing microbial fuel cell running on swine liquid manure D.Y. Martin, R. Hogue, P. Dubé et al. (Canada)
8:40	101564	Continuous fermentative hydrogen production in different process conditions N. Nasirian, M. Almassi, S. Minaee et al. (Iran/Germany)
9:00	101636	Centrifugal potential energy: An astounding renewable energy concept I.A. Oduniyi (Nigeria)
9:20	100776	Evaluation of an earth heat storage system in a solar energy greenhouse Q. Zhang, J. Langrell, R. Boris (Canada)
9:40	100435	Energy usage for cotton ginning in Australia S.A Ismail, G. Chen, C. Baillie et al. (Malaysia/Australia)

Wednesday, June 16 – 8:15 to 10:00

99	Section V	Logistics and Knowledge Transfer
Time	Paper #	Moderator: Claus Gron Soerensen (Denmark) Room: 204B
8:15		Session Opening
8:20	101097	Online model predictive monitoring for controlling and optimizing the performance of agricultural production processes K. Mertens, B. De Ketelaere, J. De Baerdemaeker (Belgium)
8:40	100700	Tractor based services and related support policies in developing countries J. Kienzle, W. Hancox, J. Ashburner (Italy/UK)
9:00	100526	Dynamic role of reverse logistic cycle with in life cycle analysis for sustainablility Z. Ali-Qureshi (Canada)
9:20	100315	Development of criteria and indicators for monitoring progress towards sustainable remediation I. S. Dunmade (Canada)
9:40	100471	Knowledge transfer model for agricultural engineering E. Quendle, J. Boxberger (Austria)

Wednesday, June 16 – 8:15 to 10:00

100	Section VI	Post Harvest and Fresh Produce (I)
Time	Paper #	Moderator: Lope Tabil (Canada) Room: 2104AB
8:15		Session Opening
8:20	100410	Detection of salmonella on spinach leaf using phage-based magnetoelastic biosensors S. Li, S. Huang, H. Chen et al. (United States/China)
8:40	100451	Transmission of E. coli O157:H7 biofilm from contact surfaces to fresh produce Y. M. Lo (United States)
9:00	100523	Enhancing compaction characteristics of barley straw by microwave/chemical pretreatment M. Kashaninejad, B. Kashaninejad, L.G. Tabil (Iran/Canada)
9:20	100603	Comparison of mechanical properties of two apple varieties under compression loading A.G. Chakespari, A. Rajabipour, H. Mobli (Iran)
9:40	100579	Design, fabrication and evaluation of a moisture-based fig sorter D. Zare, S. Souri, M. Loghavi et al. (Iran)

Wednesday, June 16 – 8:15 to 10:00

101	Section VI	Spectroscopy and Image Analysis (II)
Time	Paper #	Moderator: Scott Noble (Canada) Room: 2105
8:15		Session Opening
8:20	101447	Fast detection of crude protein content in fish feeds based on infrared transmission spectroscopy and chemometrics F. Zhu, P. Nie, Y. He (China)
8:40	101174	Use of hyperspectral imaging to improve the safety of food A. Lefcourt (United States)
9:00	101481	Grade classification and protein content determination in matcha based on Vis/NIR X. Zhang, R. He, Y. He (China)
9:20	100808	Quantitative assessment of maple syrup properties by means of fluorescence spectroscopy A. Clément, B. Panneton, L. Lagacé (Canada)
9:40	100836	Fast adulterant quantification in Chinese yam powder using visible, near and mid-infrared spectroscopy D. Wu, P. Nie, Y. Shao et al. (China)

Wednesday, June 16 – 8:15 to 10:00

102	Section VI	Processing of Food and Beverages – POSTERS
Poster #	Paper #	Moderator: Michael Ngadi (Canada) Room: 2000D
19	101382	Ohmic heating behavior and electrical conductivity of solid foods using low and high frequency power supply R. Zareifard, S. Zhu, M. Marcotte et al. (Canada/China)
20	100513	Application of response surface methodology for optimisation of in vitro enzymatic digestion of soy protein isolate using high hydrostatic pressure processing Z. Lanfang, S. Dan, L. Shujun et al. (China)
21	100992	A new approach of rice processing for control of compound contents and eating quality of cooked rice M. Tamura, Y. Ogawa (Japan)
22	101323	Effect of low anode/cathode voltage difference application on redox potential modulation during milk electroreduction and storage L. Bazinet, A. Schreyer, J. Lessard (Canada)
23	101216	Sustainabilty of rice processing in rural sub-Saharan Africa M. Bakari, M. Ngadi, R. Kok et al. (Canada)
24	101324	Large scale bioseparation of an antihypertensive peptide from alfalfa white protein hydrolysate by electrodialysis with ultrafiltration membrane L. Firdaous, P. Dhulster, J. Amiot et al. (Canada/France)
25	100706	Winery design criteria for the production of valuable wine (DOC) A. Gusman, A. Marucci, B. Pagniello (Italy)
26	100852	Influence of polyglycerol esters of fatty acid on in vitro digestibility of soybean oil-in-water by pancreatic lipase L. Yin (China)

27	101313	Application of response surface methodology to the optimisation of in vitro enzymatic digestion of soy protein isolate of high hydrostatic pressure processing S. Dan, L. Shu-Jun, H.M. Chan et al. (China/Canada)
28	101072	Process optimization of water jet extraction of pomegranate arils using response surface methodology M.R. Mirian, J. Khazaei (Iran)
29	101125	Factors influencing formation and stability of orange-flavoured beverage emulsion S.V. Baygi, R. Kadkhodaee (Iran)

Wednesday, June 16 – 8:15 to 10:00

103	Section VII and WCCA	Geographical Information Systems (GIS) and Web Based Services
Time	Paper #	Moderator: Silvia M. F. S. Massruha (Brazil) Room: 2101
8:15		Session Opening
8:20	100584	Rest-based web services for the discovery and distribution of agricultural production standards R. Nikkilä, E. Nash, I. Seilonen et al. (Finland/Germany)
8:40	100887	Developing web-based irrigation models and services J. M. Gonçalves, A. Muga, P. Teodoro et al. (Portugal)
9:00	101154	RU-SLIMS development of Rutgers University's web-based soils laboratory information management system R.S. Muldowney, S. Murphy (Canada)
9:20	101398	Development and use of a Web-GIS-Based Information System for the management and supply of hickory environment condition data J. Yu, P. Nie, Y. He (China)
9:40	101618	Decision support systems for environmental management and conservation: A GIS-based model E. Ferrer (United States)

Wednesday, June 16 – 10:15 to 12:00

Wednesday, June 16 – 10:15 to 12:00

104	AEES	Trees and Crops for Sustainability (II)
Time	Paper #	Moderator: Dave Tilley (USA) Room: 204B
10:15		Session Opening
10:20	100800	Mopan and Que'chi Maya ecological engineering: Design strategies for sustainable ecosystem restoration and human subsistence D. D. Rayome, S. A.W. Diemont (United States)
10:40	100788	Linking traditional agroforestry practices of the Tsotsil Maya in Santo Domingo Las Palmas, Chiapas, Mexico to ecosystem biodiversity, land management sustainability, and community well-being S. J. Kelsen, S. A. W. Diemont, B. G. Ferguson (Mexico/United States)
11:00	101326	Short rotation coppice with Robinia pseudoacacia L. -A land use option for carbon sequestration on reclaimed mine sites A. Quinkenstein, C. Böhm, D. Freese et al. (Germany)
11:20	101565	The contribution of agroforestry systems to ecosystem services D. Freese, C. Böhm, A. Quinkenstein et al. (Germany)
11:40	100792	Emergy synthesis for valuing the ecosystem services of green walls and other vegetated building envelope technologies D. R. Tilley, J. Price, E. Campbell (United States)

Wednesday, June 16 – 10:15 to 12:00

105	Edu	Engineering Education for Agriculture, Food Systems, Ecology and Biosystems
Time	Paper #	Moderator: Omar Ulloa (Costa Rica) Room: 2102B
10:15		Session Opening
10:20	100058	A dean's perspective on the future of agricultural engineering education in Canada Claude Laguë (Canada)
10:40	101663	Biosystems engineering curricula in Europe P. Febo, A. Comparetti (Italy)
11:00	-	Engineering Education in Latin America Irenilza Alencar Naas (Brazil)

Wednesday, June 16 – 10:15 to 12:00

106	IDS	Drainage From Forested Lands and other Land Uses
Time	Paper #	Moderator: Devendra Amatya (USA) Room: 205C
10:15		Session Opening
10:20	100261	A comparison of mike she and DRAINMOD for modeling forested wetland hydrology in coastal south Carolina, USA Z. Dai, D. M. Amatya, G. Sun et al. (United States)
10:40	100185	Field evaluations of a forestry version of DRAINMOD-N II model S. Tian, M. A. Youssef, R.W. Skaggs et al. (USA)
11:00	100188	Streamflow characteristics of a naturally drained forested watershed in southeast Atlantic coastal plain D. M. Amatya, C. C. Trettin (United States)
11:20	100215	The effect of sampling frequency on the accuracy of nitrogen load estimates from drained loblolly pine plantations in eastern North Carolina G. M. Chescheir, F. Brigand, S. Tian et al. (USA)
11:40	100162	Advances in sportsturf drainage D. B Shelton (United Kingdom)

Wednesday, June 16 – 10:15 to 12:00

107	IDS	Maps and Tools for Decision Makers
Time	Paper #	Moderator: Robert Lagacé (Canada) Room: 206A
10:15		Session Opening
10:20	100078	National inventory of artificially drained lands in Germany B. Tetzlaff, P. Kuhr, F. Wendland (Germany)
10:40	100271	Using earth observation data for soil drainage classification and mapping M.A Niang, M.C. Nolin, S. Perrault et al. (Canada)
11:00	100301	Certification of drainage contractor enterprises - experience in Québec R. Lagacé, D. Laberge, F. Lambert (Canada)
11:20	100243	Preliminary study of the WRSIS concept at the paddy-upland crops rotation area in southern China S. Xiaohou, J. Qiu, H. Xiujun et al. (China)
11:40	100093	Impacts of the Chashma Right Bank Canal on land use and cropping pattern in D.I.Khan district (Pakistan) A.-U. Rahman, A. N. Khan (Pakistan)

Wednesday, June 16 – 10:15 to 12:00

108	Nano	Nanotechnologies for Environment and Seeds
Time	Paper #	Moderator: Safia Hamoudi (Canada) Room: 205A
10:15		Session Opening
10:20	100850	Alkanolamine/ionic liquid microemulsions: Enhanced CO_2 capture ability with curbed corrosion behaviour M. Hasib-Ur-Rahman , M. Siaj, F. Larachi (Canada)

10:40	101305	Adsorptive removal of phosphate anions from aqueous solutions using functionalized SBA-15: Effects of the organic functional group S. Hamoudi, A. El-Nemr, K. Belkacemi (Canada)
11:00	100368	Development of carbon dioxide (CO_2) sensor using polymer nanoparticles for grain quality monitoring S. Neethirajan, M. Freund, D. Jayas et al. (Canada)
11:20	101351	Effect of silver nanoparticles for protection of seeds in different soils N. Karimi, S. Minaei, A.R. Shahverdi et al. (Iran)
11:40	101456	A variable rate grain drill for planting seeds treated with silver nanoparticles N. Karimi, S. Minaei, M. Almasi et al. (Iran)

Wednesday, June 16 – 10:15 to 12:00

109 Section I Changes in Water and Land Uses

Moderator: Guanhua Huang (China)
Room: 207

Time	Paper #	
10:15		Session Opening
10:20	100363	Geographical shift in livestock production: Consequences for land use planning and policy making G. J. Carsjens, P. Gerber (Netherlands/Italy)
10:40	100466	Agriculture, population and their impact on the global environment P. Roy, T. Orikasa, N. Nakamura et al. (Japan)
11:00	100546	Grid based rainfall-runoff GIS modelling to study the anthropogenic effect on the hydrology of a small watershed M. Greppi, G. Senes (Italy)
11:20	100331	Development of a model for estimating current and future irrigation water demand in Canada O. Aladenola, C. Madramootoo (Canada)
11:40	101228	Technical, economic and legal aspects of management of transboundary water resources - A case study of Indus Waters Treaty 1960 S.J.A. Shah (Pakistan)

Wednesday, June 16 – 10:15 to 12:00

110 Section II Field Measurements for Aerosol and Gas

Moderator: Sven Nimmermark (Sweden)
Room: 204A

Time	Paper #	
10:15		Session Opening
10:20	100659	Broiler gas spatial variability on different minimum ventilation systems D.J. Moura, T.M.R. Carvalho, Z.M. Souza et al. (Brazil)
10:40	100942	Dust and ammonia emissions from UK poultry houses T. Demmers, A. Saponja, R. Thomas et al. (UK)
11:00	101015	Ammonia emissions from broiler housing facility: Influence of litter properties and ventilation M. Knížatová, Š. Mihina, J. Brouček et al. (Slovakia)
11:20	101211	Measuring emissions from a naturally ventilated turkey grow-out building L.D. Jacobson, B.P. Hetchler, S.L. Noll (United States)
11:40	101135	Assessing odour plumes surrounding swine operations Q. Zhang, X. Zhang (Canada)

Wednesday, June 16 – 10:15 to 12:00

111 Section II Building Design and Materials

Moderator: Yves Choinière (Canada) Room: 205B

Time	Paper #	
10:15		Session Opening
10:20	100462	Minimum distance separation (MDS) formulae: 40 years (1970-2010) - Successes and lessons learned H. W. Fraser, J. Turvey (Canada)
10:40	100615	Sustainable building with concrete: how long do containers last? J.-G. Krentler (Germany)
11:00	100628	Usage of concrete for farm buildings and manure storages; specifications, durability and practical considerations Y. Choinière (Canada)
11:20	100936	An instrument for measuring the skid resistance of floors in livestock housing P. Liberati, P. Zappavigna (Italy)
11:40	101469	Treatment of dairy soiled water using a woodchip filter E. Ruane, P.N.C. Murphy, E. Clifford et al. (Ireland)

Wednesday, June 16 – 10:15 to 12:00

112 Section III Harvest of Biomass (I)

Moderator: Mark Lefsrud (Canada)
Room: 203

Time	Paper #	
10:15		Session Opening
10:20	101026	Quality of wooden chips produced by Claas Jaguar fitted with experimental CRA-ING rotor L. Pari, V. Civitarese, A. Del Giudice (Italy)
10:40	101656	Anderson introduces a new biomass baler L. D'Amour, F. Lavoie (Canada)
11:00	100100	Spring harvest of corn stover P.-L. Lizotte, P. Savoie (Canada)
11:20	100515	Machinery management data for willow harvest with a Bio-baler P. Savoie, P. L. Hébert, F.-S. Robert (Canada)
11:40	100516	Harvest of woody crops with a bio-baler in eight different environments in Minnesota D. Current, P. Savoie, P.L. Hébert et al. (United States/Canada)

Wednesday, June 16 – 10:15 to 12:00

113 Section III Crop Management and Protection – POSTERS

Moderator: John K. Schueller (USA)
Room: 2000D

Poster #	Paper #	
30	100799	Comparison of energy requirements of traditional and conservative soil tillage for maize cultivation in central Italy R. Fanigliulo, C. Cervellini, G. Brannetti et al. (Italy)
31	100577	Development of peach harvesting end-effector with function for estimation of degree of ripeness K. Kito, W.X. Lun, H. Goto (Japan)
32	100620	Using artificial neural networks for discrimination the corn plants from the weeds S. Kiani, A. Jafari, Z. Azimifar (Iran)
33	100650	Design of a mechanical release system of Perillus bioculatus to control the Colorado potato beetle, Leptinotarsa decemlineata (SAY) S. De Ladurantaye, M. Khelifi (Canada)
34	100726	Thermal control of hazelnut suckers R. Tomasone, G. Colorio, C. Cedrola et al. (Italy)
35	101089	Mechanical control of quackgrass in grassland R. Khorchani, M. Khelifi, M. Bournival (Canada)
36	101390	Test bench for mechanical distribution of predators to control insect pests M. Khelifi, F. Paré, Y. De Ladurantaye (Canada)
37	100535	Automatic weed control system for processing tomatoes D.C. Slaughter, M. Pérez, C. Gliever et al. (USA/Spain)
38	101083	Innovative strategies and machines for physical weed control in vegetable crops in central and southern Italy A. Peruzzi, M. Fontanelli, C. Frasconi et al. (Italy)
39	101088	Innovative strategies for physical weed control on hard surfaces in urban area in central Italy: Development of new flaming operative machines A. Peruzzi, L. Lulli, M. Fontanelli et al. (Italy)
40	100944	Effects of the machine wheel load on grass yield O. Green, R. N. Jørgensen, K. Kristensen et al.(Denmark)
41	100961	Development of a distribution system for measuring nozzle integrative parameter X. Xue, J. Liang, P. Liu et al. (China/United States)
42	101336	The effect of fan frequency on the droplet spraying swath of air-aided sprayer S. Song, T. Hong, D. Sun et al. (China)

Wednesday, June 16 – 10:15 to 12:00

114	Section IV	Biofuels and Biogas – POSTERS
Poster #	Paper #	Moderator: Naveen Patni (Canada) Room: 2000D
43	100404	Different purification methods and quality of sunflower biodiesel A.L.M.T. Pighinelli, R.A. Ferrari, A.M.R.O Miguel et al. (Brazil)
44	100982	Using pre-heated sunflower oil as fuel in a diesel cycle engine H. C. Delalibera, P. H. W. Neto, J. Martini (Brazil)
45	101467	Production of microscopic algae for its consequent use as aviation fuel T. Maekawa, J. Jia, K. Intabon et al. (Japan)
46	100646	Use of farm waste biomass in the process of gasification for energy production J. Piechocki (Poland)
47	100839	Gasification of waste from furniture industries for generation of sustainable energy J. L. Oliveira, J. N. Silva, E. G. Pereira et al. (Brazil)
48	100492	Development of a biogas purifier for rural areas in Japan Y. Kimura, S. Yasui, T. Hinata et al. (Japan)
49	101302	Design of a 60MW CFB gasification system (CGAS) for Uganda- Utilising rice husks as input fuel F. Amanyire, D.B. Bagamuhunda (Uganda)

Wednesday, June 16 – 10:15 to 12:00

115	Section VI	Post Harvest and Fresh Produce (II)
Time	Paper #	Moderator: Clément Vigneault (Canada) Room: 2104AB
10:15		Session Opening
10:20	100636	Design and performance of a lab scale controlled environment chamber (CEC) used for determination of horticultural produce quality deterioration J. Boutin, D. I. Leblanc, C. Vigneault et al. (Canada)
10:40	100940	In-field measurement of fruit respiration for determining climacteric activity and harvest maturity of mango M. Nagle, W. Spreer, B. Mahayothee et al. (Germany/Thailand)
11:00	101123	Effect of drying and tempering conditions on milling quality in multi-pass drying of rough rice E. Nasrnia, M. Sadeghi, A.A. Masoumi (Iran)
11:20	101219	Impact of the age of laying chicken on mechanical strength of eggs N Abdel-Nour, M. Ngadi, V. Raghavan (Canada)
11:40	101275	Energy saving during bulb storage applying modeling with computational fluid dynamics (CFD) A.A. Sapounas, J.B. Campen, J. Wildschut et al. (Netherlands)

Wednesday, June 16 – 10:15 to 12:00

116	Section VI	Spectroscopy and Image Analysis (III)
Time	Paper #	Moderator: Da-Wen Sun (Ireland) Room: 2105
10:15		Session Opening
10:20	101385	Combination of near infrared spectroscopy and multivariate analysis to detect valine (C5H11NO2) in oilseed rape leaves W. Kong, F. Liu, H. Fang et al. (China)
10:40	101207	Confocal laser scanning microscopy imaging of deep-fat fried batter coating A.A. Adedeji, L. Liu, M.O. Ngadi (Canada)
11:00	101287	Application of near infrared spectroscopy and least squares-support vector machine to determine soluble protein in oilseed rape leaves F. Liu, Y. Zhao, G. Sun et al. (China)
11:20	101107	Near infrared hyperspectral imaging for classification of beef muscles G. Elmasry, D.-W. Sun, P. Allen (Ireland)
11:40	100751	Evaluation of novel high intensity pulsed UV sources for processing food beverages T. Koutchma, M. Orlowska (Canada)

Wednesday, June 16 – 10:15 to 12:00

117	Section VII and WCCA	Modeling, Simulation and Data Mining (I)
Time	Paper #	Moderator: Antonio M Saraiva (Brazil) Room: 2101
10:15		Session Opening
10:20	101162	Quantitative analyses aspect of vibrational spectroscopy and its applications in agriculture W. Wang, J. Paliwal (Canada)
10:40	100677	Aerodynamic modeling of windbreaks in Saemangum reclaimed land J. P. Bitog, I-B. Lee, S-W. Hong et al. (Korea)
11:00	100823	Comparison of different methods for sensitivity analysis of composting modelling P. Courvoisier, G. Clark (Canada)
11:20	101090	Fourier filtering for wheat detection in a context of yield prediction L. Journaux, A. Marin, F. Cointault et al. (France)
11:40	101191	Machine learning models for prediction of added water in milk as a function of milk temperature and some other physical characteristics J. Khazaei, M. Nikousiar, N. Mohammadi (Iran)

Wednesday, June 16 – 10:15 to 12:00

118	Section VII and WCCA	ICT, GIS and Web Services – POSTERS
Poster #	Paper #	Moderator: Jiannong Xin (USA) Room: 2000D
50	101034	Radio frequency interactions with air cargo container materials for real time cold chain monitoring M. Laniel, I. Uysal, J.-P. Émond (United States)
51	101080	Spatio-temporal variability of soil moisture at the field scale using remote and proximal sensing K. Labrecque, M. Bernier, M.C. Nolin et al. (Canada)
52	101495	Claw and foot health: Early diagnostics and prevention of foot lesions in dairy cattle P. Tamminen, M. Pastell, J. Häggman et al. (Finland)
53	101486	Remote sensing and GIS for rural/urban gradient detection C.R. Fichera, G. Modica, M. Pollino (Italy)
54	100365	Advanced technologies in developing web-based decision support systems for agriculture J. Weres, W. Mueller, R. Kozłowski et al. (Poland)
55	101464	The development of whole process mechanization production and technical specification of the whole process mechanization of rape in eastern China K. Zhou (China)
56	100837	Quantitative analysis supported in SNA of the production milk chain in Brazil M.N. Mollo, I.A. Nääs, O. Vendrametto et al. (Brazil)

Wednesday, June 16 – 13:35 to 15:20

Wednesday, June 16 – 13:35 to 15:20

119	AEES	Treatment Wetlands and Lagoon Management
Time	Paper #	Moderator: Christina Toms (USA) Room: 204B
13:35		Session Opening
13:40	101176	Influence of hummocks and emergent vegetation on hydraulic performance in a surface-flow wastewater-treatment wetland J.S. Daniels, S.H. Keefe, L.B. Barber (United States)
14:00	101518	Green manure production as a value-added component of treatment wetlands for livestock wastewater S.D. Mclennan, D. Reinhold (United States)
14:20	101569	An interdisciplinary ecological engineering approach to the assessment and enhancement of lagoons in California's central coast C. Toms (United States)

14:40	101575	In-lake algal bloom removal and ecological restoration using modified local soil technology G. Pan (China)
15:00	101610	Evaluation of toxicity metrics and the toxicity of different production methods in the US Z. Clayton-Niederman, L.L. Nalley, M.D. Matlock (USA)

Wednesday, June 16 – 13:35 to 15:20

120 IDS Treatment of Drainage Water

Moderator: William Ritter (USA)
Room: 206A

Time	Paper #	
13:35		Session Opening
13:40	100073	Bioreactor design geometry effects on nitrate removal L. Christianson, A. Bhandari, M. Helmers (United States)
14:00	100171	Nitrate removal of drainage water with barley straw as a bioreactor filter S. E. Hashemi, M. Heidarpour, B. Mostafazadeh-Fard et al. (Iran)
14:20	100207	Beyond the field: A look at agricultural ditch floodplains as a water quality BMP S. Kallio, A. Ward, J. L. D'Ambrosio et al. (United States)
14:40	100209	A decade later: the establishment, channel evolution, and stability of innovative two-stage agricultural ditches in the Midwest region of the United States R. Kallio, A. Ward, J. L. D'Ambrosio et al. (United States)
15:00	100229	Minnesota agricultural ditch reach assessment for stability (MADRAS): A decision support tool J. Magner, B. Hansen, C. Anderson et al. (United States)

Wednesday, June 16 – 13:35 to 15:20

121 IDS Drainage of Irrigated Lands

Moderator: George "Chip" Chescheir (USA)
Room: 205C

Time	Paper #	
13:35		Session Opening
13:40	100037	Drainage of irrigated lands C. B. Dandekar , B. A. Chougule (India)
14:00	100104	Environmental and economic multi-objective model for managing irrigation and drain water H. Noory, A.-M. Liaghat, M. Parsinejad et al. (Iran)
14:20	100225	Water redistribution within the potato root zone following irrigation S. Satchithanantham, M.R.C. Cordeiro et al. (Canada)
14:40	100227	Assessment of rootzone water redistribution in corn following irrigation M. R. C. Cordeiro, S. Satchithanantham et al. (Canada)
15:00	100228	Drainage design practices in irrigated agriculture; new concepts gained from recent experiences in three countries of Maghreb, North Africa B. Vincent, I. B. Aissa, A. Belouazni et al. (France/Tunisia/Algeria/Morocco)

Wednesday, June 16 – 13:35 to 15:20

122 Nano Production and Application of Nanoparticles – POSTERS

Moderators: Khaled Belkacemi and Joseph Arul (Canada)
Room: 2000D

Poster #	Paper #	
57	100213	Synthesis of $CaCO_3$ nanoparticles by controlled precipitation from saturated sodium carbonate and calcium nitrate aqueous solutions R. B. Babou-Kammoe, S.Hamoudi, K.Belkacemi (Canada)
58	100559	Determination of the optimum combination of processes in nano-sizing flax fibres for use as sustainable reinforcement in bionanocomposites B.A.C. Siaotong, S. Panigrahi, L. Tabil (Canada)
59	101201	Effect of addition of different types of modified clays in the properties of opacity and solubility of zein biofilm J.F. Lopes-Filho, L.L. Tavares, C.B. Almeida et al. (Brazil)
60	101360	A facile solvothermal route to shape-controlled titania nanocrystals C.-T. Dinh, T.-D. Nguyen, F. Kleitz et al. (Canada)
61	101423	Removal of phosphate and nitrate anions from aqueous solutions using ammonium-functionalized MCM-48: Breakthrough curves S. Hamoudi, K. Belkacemi (Canada)
62	101543	Antibacterial activities of nano-crystalline CaO, MgO and ZnO on lactic bacteria D. Claveau, Z. Tang, L. Couture et al. (Canada)
63	100431	Nano silver functionalization on agrobacterium-mediated transformation with companionship of nanobiotechnology M.K. Sarmast, H. Salehi, M. Khosh-Khui et al. (Iran)
64	101544	Antifungal activities of nano-crystalline and micrometric CaO, MgO and ZnO D. Claveau, Z. Tang, M. Balasundaram et al. (Canada)
65	100571	Advances of research on structural characterization of agricultural products using atomic force microscopy L. Dongli, C. Fang (China)

Wednesday, June 16 – 13:35 to 15:20

123 Section I Assessment of Water Pollution and Salinity

Moderator: Gerrit-Jan Carsjens (Netherlands)
Room: 207

Time	Paper #	
13:35		Session Opening
13:40	100081	Modelling phosphorus inputs from diffuse and point sources with MEPhos in Germany - a contribution to the implementation of the EU water legislation B.Tetzlaff (Germany)
14:00	101220	Effect of nonionic surfactant Brij 35 on the fate of metribuzin in a sandy soil E. Elsayed, S.O. Prasher, R.M. Patel (Canada)
14:20	101468	Phosphorus removal and recovery from high calcium hog lagoon supernatant using a gravity settled struvite reactor J.N. Ackerman, N. Cicek (Canada)
14:40	100739	Mapping of soil salinity and clay content based on electromagnetic induction measurements by EM38 S. Zia, D. Wenyong, W. Spreer et al. (Germany/China)
15:00	100127	Studies on appropriate depth of leaching water along with reclamation-rotation program (a case study in mid-part of Khuzestan, Iran) F.Rajabzadeh, E .Pazira, M .H. Mahdian (Iran)

Wednesday, June 16 – 13:35 to 15:20

124 Section II Methods to Quantify Aerosol, Gas and Emissions

Moderator: Anders Feilberg (Denmark)
Room: 204A

Time	Paper #	
13:35		Session Opening
13:40	100401	The influence of animal activity and litter on carbon dioxide balances to determine ventilation flow in broiler production S. Calvet, M. Cambra-López, F. Estellés et al. (Spain/Germ.)
14:00	101079	Effects of air exchange, temperature and slurry management on odorant emissions from pig production units and slurry tanks studied by proton–transfer-reaction mass spectrometry (PTR-MS) A. Feilberg, A.P.S. Adamsen, D. Liu et al. (Denmark)
14:20	101523	Identification of key odour components from pig buildings for modelling purposes M. Martel, S.P. Lemay, M. Belzile et al. (Canada)
14:40	100932	Use of carbon dioxide balances to determine ventilation rates from fattening rabbits farms F. Estellés, O. Blumetto, S. Calvet et al. (Spain/Uruguay)
15 :00	-	Open discussion - Aerosol, gas and odor emission Larry Dean Jacobson (USA)

Wednesday, June 16 – 13:35 to 15:20

125	Section II	Grain Storage Issues
Time	Paper #	Moderator: Thomas Banhazi (Australia) Room: 205B
13:35		Session Opening
13:40	100685	Rough rice storage below freezing point by using renewable energy from fresh chilly air in winter S. Kawamura, K. Takekura (Japan)
14:00	100864	Low-temperature brown rice storage by using renewable energy from snow S. Fujikawa, S. Kawamura, H. Fujita et al. (Japan)
14:20	100899	Equipment for dust reduction in grain handling: evaluation of dust and chaff extractor and aspirator Q. Geng, G. Lundin (Sweden)

Wednesday, June 16 – 13:35 to 15:20

126	Section III	Harvest of Biomass (II)
Time	Paper #	Moderator: Mark Lefsrud (Canada) Room: 203
13:35		Session Opening
13:40	100098	Corn stover fractions as a function of hybrid, maturity, site and year P.-L. Lizotte, P. Savoie, M. Lefsrud (Canada)
14:00	101005	Simultaneous harvesting of straw and chaff for energy purposes - influence on bale density, yield, field drying process and combustion characteristics G. Lundin, M. Rönnbäck (Sweden)
14:20	101024	Evaluation of chips quality by the analysis of two different harvesting methodologies L. Pari, V. Civitarese, A. Del Giudice (Italy)
14:40	100767	Simulation of hemp fibre bundle and cores using discrete element method M. A.-A. Sadek, Y. Chen, C. Laguë et al. (Canada)
15:00	100981	Economic production and processing of agricultural fibre plants for high quality applications in automotive, building and furniture industry R. Pecenka, C. Fürll, H.-J. Gusovius (Germany)

Wednesday, June 16 – 13:35 to 15:20

127	Section III	Design and Modeling
Time	Paper #	Moderator: Claude Laguë (Canada) Room: 205A
13:35		Session Opening
13:40	100238	Dynamic analysis of a tractor engine crankshaft in knocking phenomenon E. Mahmoodi, A. Jafari, S. Rafiee (Iran)
14:00	100768	Decortication of hemp (Cannabis sativa) fibers using drop weight impact: Fiber yield and properties Md. M. R. Khan, Y. Chen, C. Laguë et al. (Canada)
14:20	100769	Theoretical analysis of energy requirement for hemp decorticators J. Xu, Y. Chen, C. Laguë et al. (Canada)
14:40	101065	Aerodynamic properties of hemp fibre and core S. Parvin, Y. Chen, C. Laguë et al. (Canada)
15:00	100266	Development of a system for pattern operations M. Gebben, G. Kormann (Germany)

Wednesday, June 16 – 13:35 to 15:20

128	Section IV	Biomass, Compost and Energy Assessment - POSTERS
Poster #	Paper #	Moderator: Yannick de la Durantaye (Canada) Room: 2000D
66	100447	Preliminary investigation into the pressing process of sweet pearl millet and sweet sorghum biomass for ethanol production M. Crépeau, M. Khelifi, A. Vanasse (Canada)
67	100527	Engineering developments for small-scale harvest, storage and combustion of woody crops in Canada P. Savoie, C. Ouellet-Plamondon, R. Morissette et al. (Canada)
68	100576	Food and biomass production in small oil expression facilities H. Kato, G. Kanai, K. Yakushido (Japan)
69	101133	Electrical energy use in different heating systems for early weaned piglets J. Sarubbi, L.A. Rossi, D.J. Moura et al. (Brazil)
70	100778	Determination of pressure distribution in an aerated bed in a controlled pilot-scale compost reactor P. Solowiej (Poland)
71	100779	Controlling the process of composting farm biomass with the use of fuzzy logic M. Neugebauer (Poland)
72	101186	Efficiency of the heat pump cooperating with various heat sources in monovalent and bivalent systems S. Kurpaska, H. Latala (Poland)
73	101661	Integration of PV modules in existing Romanian buildings from rural areas S. Fara, D. Finta, L. Fara et al. (Romania)
74	100987	Experiences on the integration of thin film photovoltaic modules in a Mediterranean greenhouse R. Ureña, J. Pérez, M. Pérez et al. (Spain)
75	100991	Energy use in legume cultivation over Turkey C. Ertekin, M. Canakci, R. Kulcu et al. (Turkey)

Wednesday, June 16 – 13:35 to 15:20

129	Section VI	Microbiological Inactivation
Time	Paper #	Moderator: Tatiana Koutchma (Canada) Room: 2104AB
13:35		Session Opening
13:40	100909	Effect of aluminium cookware on microbial inactivation during pasteurization of milk N. Ruangthip, S. Kawamura, Y. Uchida et al. (Japan)
14:00	100748	Characterization of low UVT liquid foods and ingredients for ultraviolet preservation T. Koutchma, C. Defelice (Canada)
14:20	100914	Antimicrobial activity of novel packaging material made from biomass plastics and shell (scallop) powder Y. Hasegawa, T. Kimura (Japan)
14:40	101045	Thermal inactivation of Byssochlamys nivea in pineapple nectar combined with preliminary high pressure treatments E.H.R. Ferreira,A. Rosenthal, V. Calado et al. (Brazil)
15:00	101215	Ultraviolet depuration of Escherichia coli from the juvenile clam, Cyclina sinensis in China M. Yu-Ping, Q. Qing-Lin (China)

Wednesday, June 16 – 13:35 to 15:20

130	Section VI	Spectroscopy and Image Analysis (IV)
Time	Paper #	Moderator: Jochen Hemming (Netherlands) Room: 2105
13:35		Session Opening
13:40	100411	Role of infrared thermal imaging in stored products protection V. Rajagopal, D. S. Jayas, N. D.G. White (Canada)
14:00	101446	The successive projections algorithm for variable selection in alien invasive weeds classification based on Vis/WNIR P. Nie, J. Yu, Y. Zhao et al. (China)
14:20	100647	Application of infrared spectromicroscopy to characterize and determine the spatial distribution of lignocellulosic components in agricultural straw pellets P. K. Adapa, C. Karunakaran, L. G. Tabil et al. (Canada)
14:40	100653	Detection of internal defect in pickling cucumbers using laser scattering image analysis D. P. Ariana, R. Lu (United States)
15:00	101474	Melon soluble solids content measurement using Vis/NIR diffuse reflectance spectroscopy H. S. Shin, S. R. Suh, K. H. Lee et al. (Republic Of Korea)

Wednesday, June 16 – 13:35 to 15:20

131	Section VI	Food Properties (II) - POSTERS
Poster #	Paper #	Moderator: Valérie Orsat (Canada) Room: 2000D
76	101149	Fluid-dynamic properties and pressure loss of black beans in a packed bed R.A. De Oliveira, K.J. Park, A.M. Vivas et al. (Brazil)

77	101167	Methods for the assessment of candy gum elasticity G. Csima, V. Biczó, T. Kaszab et al. (Hungary)
78	101475	Color texture feature analysis for estimation of melon internal quality S.R. Suh, K.H. Lee, S.H. Yu et al. (Republic Of Korea)
79	101553	Moisture adsorption isotherms of castor beans A.L.D. Goneli, P.C. Corrêa, G.H.H. Oliveira et al. (Brazil)
80	101642	Rheological properties of processed liquid egg white products C. Németh, R. Juhász, L. Friedrich et al. (Hungary)
81	101190	Mass modeling of pomegranate fruits: Artificial neural networks method J. Khazaei, S.A. Hosseini, Z.M. Jafari (Iran)
82	100506	Physical properties of cumin (Cuminum cyminum) and caraway (Carum carvi) seeds D. Zare, A. Bakhshipour, A. Zomorodian (Iran)
83	100983	The effect of paddy moisture content on milling losses and post-milling crack development in rice kernel, under different storage conditions N. Sadeghi, S. M. Nassiri (Iran)

Wednesday, June 16 – 13:35 to 15:20

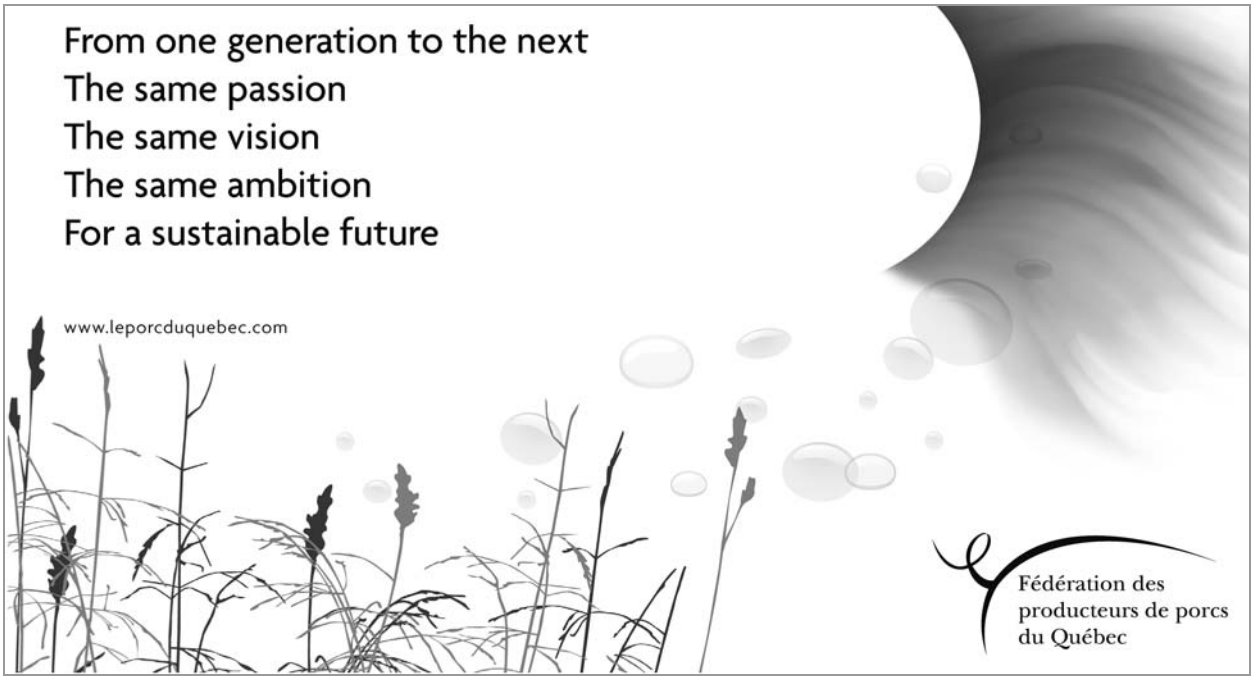
132	Section VII and WCCA	Modeling, Simulation and Data Mining (II)
Time	Paper #	Moderator: Stanley Best (Chile) Room: 2101
13:35		Session Opening
13:40	101224	DiagData: A tool for generation of fuzzy inference system S.M.F.S. Massruhá, R.F. Riccioti, H.P. Lima et al. (Brazil)
14:00	100657	Using data mining to evaluate different minimum ventilation systems in broiler houses D.J. Moura, T.M.R. Carvalho, I.A. Nääs (Brazil)
14:20	101644	Challenges in ecological niche modelling F.S. Santana, A.M. Saraiva (Brazil)
14:40	101457	Structural plant modelling based on real 3D structural parameters, resulting simulation system and rule-based language XL R. He, J. Hu, Y. He et al. (China)
15:00	100824	A numerical integrated model of composting processes using finite elements methods P. Courvoisier, G. Clark (Canada)

Wednesday, June 16 – 13:35 to 15:20

133	Section VII and WCCA	Wireless Technology (II)
Time	Paper #	Moderator: Seishi Ninomiya (Japan) Room: 2102B
13:35		Session Opening
13:40	101159	Refrigerated fruit storage monitoring using RFID and WSN L. Ruiz-Garcia, J. Garcia-Hierro, P. Barreiro et al. (Spain)
14:00	101270	Three-tier wireless sensor network for environmental monitoring N. Zhang, W. Han (United States)
14:20	100477	Development of RFID temperature tracking systems for combat feeding logistics C. Amador, J.-P. Emond (United States)
14:40	100679	Research on WSN design and formation for drought monitoring in a tea plantation W. Wang, D. Sun (China)

Wednesday, June 16 – 15:35 to 17:00

Closing Ceremonies – see details on page 9



CIGR International Symposium

7th International Symposium on Cement Based Materials for a Sustainable Agriculture

September 18-21st 2011, Québec City, Canada

Welcome

The organising committee is delighted to invite you to the 7th International Symposium on Cement Based Materials for a Sustainable Agriculture of the International Commission of Agricultural Engineering (CIGR). Meetings will take place at the Château Bonne-Entente located in Québec City.

Get to know your international colleagues at evening receptions or on visits to the famous sights of Quebec City and its surrounding area. The technical tours will provide an opportunity to visit research farms and a concrete university laboratory.

Program

The scientific program will include plenary sessions and sessions on the following topics :

- Concrete deterioration;
- Low emitting concrete construction for animal production;
- Concrete and animal welfare;
- Concrete and green building (ex.: label and environmental declaration);
- Water and wastewater management;
- Air and water tightness in concrete structures;
- LCA and concrete used in sustainable farm building.

CALL FOR PAPERS: First announcement, CSAS 2011

Reminder

Abstract submission deadline
November 12th 2010

Notification of acceptance
January 2011

Paper submission deadline
May 30th 2011

Early bird registration
Up to June 1st 2011

Symposium date
18 – 21st September 2011

Symposium language
English

Contact person:

Dr. Stéphane Godbout
IRDA, Complexe scientifique, bur. B.1.305.23, 2700, rue Einstein, Québec (Québec), G1P 3W8, Canada
stephane.godbout@irda.qc.ca
418-646-1075

Symposium Organisation

Updated information about the Symposium is available : http://www.bioeng.ca/events

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CRIB

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UNIVERSITÉ LAVAL

Technical Tours

All technical tours are on **Thursday, June 17**. Each tour costs 95$ and includes access to all sites, a lunch and a light snack on the way back. If you are interested to participate in a technical tour, ask the registration desk for availability.

Drainage and Water Management tour

Departure: 8:00 at the Convention Centre (entrance on René-Lévesque Blvd)
Return: 18:00

1. Subsurface drainage installation site
2. Field with detention basins
3. Controlled drainage system
4. Water management system of a cranberry field

Environment and Livestock tour

Departure: 8:00 at the Convention Centre (entrance on René-Lévesque Blvd)
Return: 18:30

1. Deschambault Research Farm: Mobile Olfactometry laboratory, wintering pens, BABE laboratory and Air quality unit - mesanges[MD], bio-energy laboratory and in-barn separation prototype. Deschambault. http://www.irda.qc.ca/installations/stations/7.html
2. Lunch at the farm.
3. Dairy barn visit: "La Ferme Landrynoise Inc.". Warwick
4. Swine building with a Noveko air filtration system. St-Bernard de Beauce

Food and Process Engineering tour

Departure: 8:00 at the Convention Centre (entrance on René-Lévesque Blvd)
Return: 20:00

1. Citadelle Maple Syrups' Cooperative: One of the most important producer, processor of maple and honey products. Plessisville. www.citadelle-camp.coop
2. Lunch at the Sugar Shack.
3. Food Research and Development Centre (Agriculture and Agri-Food Canada): Visit of the multifunctional pilot plant. St-Hyacinthe. http://www.agr.gc.ca/
4. De Lavoie Winery: Visit and wine tasting. Rougemont. www.de-lavoie.com

Bioenergy tour

Departure: 7:15 at the Convention Centre (entrance on René-Lévesque Blvd)
Return: 20:00

1. Demers Greenhouses: Greenhouse heating with a biomass (wood chip) boiler. St-Nicolas. www.phdemers.com
2. Anderson Group: Agricultural and Forestry machinery manufacturer. Their main products are inline bale wrapper, log loader and the Biobaler (willow and shrub harvester). Chesterville. www.grpanderson.com
3. Enerkem: Biofuel and bioproducts conversion from waste. Westbury. www.enerkem.com
4. Energex Pellet Fuel: Largest wood pellet producer in North America (200 000 t/year). Lac-Mégantic. www.energex.com

Guest Program

The following activities are for participants registered in the Guest Program.

Welcome Reception

Time: **Sunday, June 13 – 18:00 to 21 :30**
Location: Musée national des beaux-arts du Québec, Parc des Champs-de-Batailles
Shuttles buses: Departure from the Convention Centre between 17:30 and 18:40 every 10 min.
Return between 20:00 and 21:30 every 15 min.
On foot: 20 min walk each way.
A Congress name tag is required. Pick yours up at the registration desk on Sunday afternoon.

18:00 Free access to Museum exhibitions
19:00 Welcome announcements by:
CIGR 2010 Local Organizing Committee: **Stéphane Godbout**
Québec City representative: **Michelle Morin-Doyle**
CIGR President: **Søren Pederson**
CSBE/SCGAB President: **Dennis Hodgkinson**

Old Québec Guided tour

Time: **Monday, June 14 – 8:30 to 12:00**
Location: Convention Centre in front of the registration desk.
Guests will board a bus for a three-hour tour of the main sites in Old Québec. Guests may end their visit in Old Québec to stroll and have lunch on their own for a nominal fee, or come back to the Convention Centre.

There is an abundance of attractions in Québec City. Its most famous district, Old Québec, is the cradle of French civilization in North America. The winding streets and bustling public squares date back over 400 years to the founding of the city by French explorer Samuel de Champlain. Today, Old Québec is famous the world over for its European charm and well-preserved architectural treasures. Delightful shops and cafés line the winding streets, where horse-drawn carriages clip clop steadily along, street performers entertain passersby and people out for a stroll admire the view from the promenade running along the top of the cliff. The entire district, which is best explored on foot, is a living history book, and every garden, building and street corner is its own chapter. In 1985, UNESCO recognized the significant historical value of Old Québec by designating it a World Heritage Site.

Cruise on the St. Lawrence River

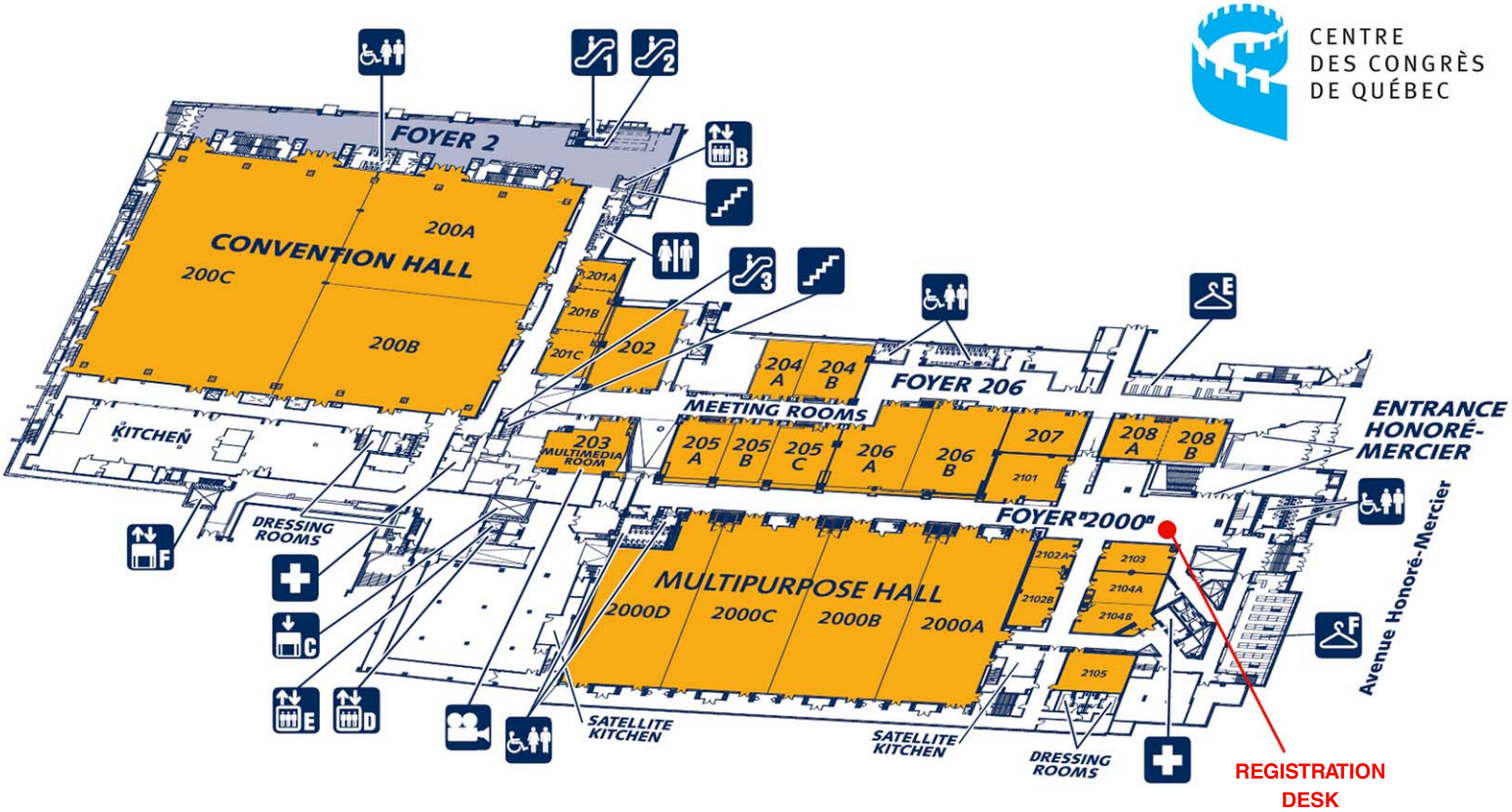
Time: **Monday, June 14 – 19:00 to 22:00**
Location: Chouinard Quay on Dalhousie street, Old Port
Shuttles buses: Departure from the Convention Centre between 17:30 and 18:40 every 10 min.
Return at 22:00 and 22:40
On foot: 25 min walk each way.
A buffet will be served on board.

Awards Banquet

Time: **Tuesday, June 15 – 19:00 to 21:30**
Location: Convention Centre, Room 2000AB
CSBE/SCGAB Awards
Recognition of past CIGR Presidents and Secretaries General
Musical show by the "**Trio Painchaud**"

The siblings of the Painchaud Family entered at the Music Conservatory between 3 and 6 years old. Each has been a soloist with the Québec Symphonic Orchestra. They were all award-winners at the provincial Aramis contest. All of them are multi-instrumentist and developped totally surprising, humourous and innovative musical skills. They revisit popular songs in a very entertaing way.

CENTRE DES CONGRÈS DE QUÉBEC



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