XVIIth World Congress of the International Commission of Agricultural and Biosystems Engineering
Convention Centre
Québec City, Canada
June 13-17, 2010

Book of Abstracts

"Sustainable Biosystems Through Engineering"
TABLE OF CONTENTS

General Information 2
Hosts and Organizing Committee 3
CIGR Section Chairs and Scientific Committee Coordinators 3
List of Abstract by Participating Group
  American Ecological Engineering Society 10th Annual Meeting 4
  ASABE’s 9th International Drainage Symposium 5
  Symposium on Nanotechnologies Applied to Biosystems Engineering and the Environment 8
  Special Interdisciplinary Session on Education 8
  INFITA and 8th World Congress on Computers in Agriculture (joint with Section VII) 24
  CIGR Section I: Land and Water Engineering 8
  CIGR Section II: Farm Buildings, Equipment, Structures and Environment 10
  CIGR Section II-B: Aquacultural Engineering 13
  CIGR Section III: Equipment Engineering for Plants 14
  CIGR Section IV: Energy in Agriculture 17
  CIGR Section V: Management, Ergonomics and Systems Engineering 18
  CIGR Section VI: Postharvest Technology and Process Engineering 19
  CIGR Section VII: Information Systems 24
Abstracts 27
Sponsors 404 (back cover)

GENERAL INFORMATION

The Book of Abstracts contains a summary provided by authors of presentations made during the XVIIth World Congress of the International Commission of Agriculture and Biosystems Engineering (CIGR). The Congress was held under the general theme of “Sustainable Biosystems through Engineering”. Several specialized symposia were organized by participating groups listed in the Table of Contents. The Canadian Society for Bioengineering (CSBE/SCGAB) is publisher of the Book of Abstracts.

EDITORS

The Editors of the Book of Abstracts are Philippe Savoie, Joey Villeneuve and René Morisette, Agriculture and Agri-Food Canada, Soils and Crops Research and Development Centre, 2560 Hochelaga Boulevard, Québec, QC, Canada G1V 2J3.

The Editors acknowledge the assistance of several contributors to the revision and editing of abstracts and full length papers: Nathalie Guesneau, Héloïse Bastien, Pierre-Luc Lizotte, Pierre Luc Hébert and François-Simon Robert. The Editors received useful advice from the CIGR Section Chairs and the participating group coordinators whose names are on the next page. Several other people acted as reviewers of abstracts and papers to improve the quality of presentations; their work is appreciated.

ABSTRACTS AND FULL PAPERS

To find an abstract, first identify its CSBE number (10XXXX). Papers can be found by technical themes in the List of Abstracts by Participating Group on pages 4 to 26. Abstracts are published in numerical order in the subsequent pages. Some abstracts have been shortened for reasons of space. Complete abstracts and full papers that were submitted will be available on the CSBE/SCGAB web site after the Congress. For updates on paper availability and downloading, visit: www.bioeng.ca

ISBN 978-2-9811062-1-6
Dépôt légal - Bibliothèque et Archives nationales du Québec, 2010
Legal Deposit - Library and Archives Canada, 2010
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)
<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>101493</td>
<td>T. Zhou, T. Endreny (United States)</td>
<td>206A</td>
<td>Predicting dynamic equilibrium in streams in the Olentangy River Watershed, Ohio, USA</td>
<td>J. Witter, A. Ward, J.L. D’Ambrosio (United States)</td>
</tr>
<tr>
<td>11:00</td>
<td>101589</td>
<td>M.E. Karpuzcu, J. Hanlon, D. Sedlak et al. (USA)</td>
<td>206A</td>
<td>Meander bend regulation of surface-ground water exchange and impacts for restoration design</td>
<td>B. Han, T. Endreny (United States)</td>
</tr>
<tr>
<td>14:00</td>
<td>101526</td>
<td>R.Z. Johnston, E. Cummings, M. Matlock (United States)</td>
<td>206A</td>
<td>Aquatic macroinvertebrate diversity in constructed stormwater wetlands</td>
<td>T. L. Moore, W.F. Hunt III (United States)</td>
</tr>
<tr>
<td>16:00</td>
<td>101600</td>
<td>C. H. Rocha, D. Almeida, P. H.W. Neto et al. (Brazil)</td>
<td>206A</td>
<td>The landscape dynamics in Pirai da Serra, Brazil</td>
<td>S. Lingwood, O. G. Clark, P. Jutras et al. (Canada)</td>
</tr>
<tr>
<td>11:40</td>
<td>101384</td>
<td>E. Cummings, M. Matlock, R.Z. Johnston (USA)</td>
<td>206A</td>
<td>A methodology to manage environmental effects of crop-shelter coverage</td>
<td>C. Arcidiacono, S.M.C. Porto (Italy)</td>
</tr>
<tr>
<td>15:35</td>
<td>101617</td>
<td>E. Cummings, M. Matlock, T. A. Costello (United States)</td>
<td>206A</td>
<td>Comparison of different plantation modes in ecological restoration in Antaibao opencast mining sites in Shanxi Province, North China</td>
<td>J.-T. Zhang, M. Li (China)</td>
</tr>
<tr>
<td>11:00</td>
<td>101608</td>
<td>C.G. Eger, D.A. Schlea, J.F. Martin (USA)</td>
<td>206A</td>
<td>Rain garden networks: Impacts on water quality</td>
<td>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</td>
</tr>
<tr>
<td>11:20</td>
<td>101612</td>
<td>M.E. Hernández, P. Ruiz-Enzástiga (Mexico)</td>
<td>206A</td>
<td>Spatial and temporal variation in the biodegradation of organophosphate pesticides in agricultural drains and riparian wetlands</td>
<td>M.E. Karpuzcu, J. Hanlon, D. Sedlak et al. (USA)</td>
</tr>
<tr>
<td>11:40</td>
<td>101334</td>
<td>I. S. Dunmade (Canada)</td>
<td>206A</td>
<td>A methodology to manage environmental effects of crop-shelter coverage</td>
<td>C. Arcidiacono, S.M.C. Porto (Italy)</td>
</tr>
<tr>
<td>15:35</td>
<td>101617</td>
<td>E. Cummings, M. Matlock, T. A. Costello (United States)</td>
<td>206A</td>
<td>Comparison of different plantation modes in ecological restoration in Antaibao opencast mining sites in Shanxi Province, North China</td>
<td>J.-T. Zhang, M. Li (China)</td>
</tr>
</tbody>
</table>
Engineering autonomy in an algal turf scrubber techno-ecosystem.
D. M. Biersch, P. Kangas (United States)

Wednesday, June 16 – 8:15 to 10:00
90 AEES Trees and Crops for Sustainability (I)
Time Paper # Moderator: Stewart Diemont (USA)
8:15  101613 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. Böhm, 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-fixing symbioses as ecological engineers?
J.-J. Drevon, H. Hanza, B. Jaillard et al. (France/Canada)

9:40  101602 Role of tao (Belota mexicana) in the traditional Lacandon Maya shifting cultivation ecosystem
K. Cheng, S. Diemont, A. Drew (United States)

104 AEES Trees and Crops for Sustainability (II)
Time Paper # Moderator: Dave Tilley (USA)
10:15  101610 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)

119 AEES Treatment Wetlands and Lagoon Management
Time Paper # Moderator: Christina Toms (USA)
13:35  101613 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. McIennen, 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. Nailey, M.D. Mallock (USA)

Abstract only
101529 Sad-rh: a generic decision support system for water resource management
M.De A.G.M. Di Hora, E. Marques, A.F. Da Hora

ASABE’s 9th International Drainage Symposium
Monday, June 14 – 10:15 to 12:00
2 IDS Drainage and Water Quality
Time Paper # Moderator: Ali Madani (Canada)
10:15  100157 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. Kliavko, 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)

3 IDS Evaluating Drainage Models and Drainpipe Envelopes
Time Paper # Moderator: Mohamed Youssef (USA)
10:15  100175 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 mound
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)
### List of Abstracts by Participating Group

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:20</td>
<td>100027</td>
<td>Evaluation of two drainage models in south-west Iran</td>
<td>F. Samipour, M. Rabie, K. Mohammadi et al. (Iran)</td>
</tr>
<tr>
<td>14:40</td>
<td>100103</td>
<td>Drainage in heavy clay soil and sugar beet yield in eastern North Delta</td>
<td>M. M. Moukhtar, A. I.N. Abdel-Aal And, M.A. B. El-Shewikh (Egypt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Monday, June 14 – 13:35 to 15:20</strong></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>IDS</td>
<td><strong>Impact of Organic Fertilizers on Drained Land</strong></td>
<td>Time Paper # Moderator: Larry Geohring (USA) Room: 204B</td>
</tr>
<tr>
<td>13:35</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>14:40</td>
<td>100139</td>
<td>Occurrence of tylosin-resistant enterococci in swine manure and tile drainage stems under no-till management</td>
<td>T.T. Hoang, M. L. Soupir (United States)</td>
</tr>
<tr>
<td>14:00</td>
<td>100149</td>
<td>Phosphorus losses though subsurface drainage in a loamy soil of Iowa: effects of rates, timing and method of swine manure and fertilizer application</td>
<td>C. Hoang, R. Kanwar, C. Pederson (United States)</td>
</tr>
<tr>
<td>14:20</td>
<td>100201</td>
<td>Subsurface drainage nitrogen discharges following manure application: measurements and model analyses</td>
<td>J. Melkonian, L.D. Geohring, H.M. V. Es et al. (United States)</td>
</tr>
<tr>
<td>14:40</td>
<td>100096</td>
<td>The effects of treated wastewater on soil nitrogen dynamics and winter wheat growth under different groundwater depth</td>
<td>X. Qi, Z. Huang, P. Li et al. (China)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Tuesday, June 15 – 10:15 to 12:00</strong></td>
<td></td>
</tr>
<tr>
<td>10:15</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>100206</td>
<td>DRAINMOD-simulated performance of drainage water management across the U.S. Midwest</td>
<td>M. A. Youssef, R. W. Skagg, K.R. Thorp et al. (USA/Egypt)</td>
</tr>
<tr>
<td>11:00</td>
<td>100138</td>
<td>Water table response to drainage water management in southeast Iowa</td>
<td>M. Helmers, R. Christianson, G. Brenneman et al. (USA)</td>
</tr>
<tr>
<td>11:20</td>
<td>100154</td>
<td>Controlled drainage to improve edge-of-field water quality in southwest Minnesota, USA</td>
<td>S.E. Feser, J.S. Strock, G.R. Sands et al. (USA)</td>
</tr>
<tr>
<td>11:40</td>
<td>100222</td>
<td>Methods to estimate effects of drainage water management on annual N losses to surface waters</td>
<td>R. W. Skagg, M. A. Youssef, G.M. Chescheir (USA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Tuesday, June 15 – 13:35 to 15:20</strong></td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>IDS</td>
<td><strong>Application of Drainage Models</strong></td>
<td>Time Paper # Moderator: Ali Madani (Canada) Room: 205C</td>
</tr>
<tr>
<td>13:35</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>13:40</td>
<td>100137</td>
<td>Potential watershed nitrate load reduction with drainage water management under varied implementation options</td>
<td>S. Ale, L. Bowling, M. Youssef et al. (United States)</td>
</tr>
<tr>
<td>14:00</td>
<td>100214</td>
<td>Modeling runoff from a small artificially drained agricultural catchment in Norway, using the DRAINMOD model</td>
<td>J. Deelstra, C. Farkas, M. Youssef (Norway/United States)</td>
</tr>
<tr>
<td>14:20</td>
<td>100143</td>
<td>Impact of climate change on drainage outflow and water quality in eastern Canada</td>
<td>S. Dayyani, S. Prasher, A. Madani et al. (Canada)</td>
</tr>
<tr>
<td>14:40</td>
<td>100205</td>
<td>Predicted impacts of climate change on crop production on drained lands in Sweden</td>
<td>M. A. Youssef, J. Wesstrom (United States/Sweden)</td>
</tr>
<tr>
<td>15:00</td>
<td>100218</td>
<td>Application of SWAP to assess performance of subsurface drainage system under semi-arid monsoon climate</td>
<td>A. K. Verma, S. K. Gupta, R. K. Isaac (India)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Tuesday, June 15 – 15:35 to 17:20</strong></td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>IDS</td>
<td><strong>Modeling Drainage Systems</strong></td>
<td>Time Paper # Moderator: Ramesh Rudra (Canada) Room: 205C</td>
</tr>
<tr>
<td>15:35</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>15:40</td>
<td>100241</td>
<td>The relationship between watershed physiography, tile flow, and streamflow characteristics</td>
<td>R. P. Rudra, S. I. Ahmed, M. Khayer et al. (Canada)</td>
</tr>
<tr>
<td>16:00</td>
<td>100258</td>
<td>Hydrologic modelling of an agricultural drained micro-watershed: Performance analysis of coupled surface water/groundwater models</td>
<td>M. Muma, A.N. Rousseau, C. Paniconi et al. (Canada/France)</td>
</tr>
<tr>
<td>16:20</td>
<td>101372</td>
<td>Empty drain and the water level at midway between the drains. Aspects regarding management</td>
<td>M. T. Eugen, B. Marinela, C. Laura et al. (Romania)</td>
</tr>
<tr>
<td>16:40</td>
<td>101429</td>
<td>New software for the optimal design of drainage network in steadystate sub-irrigation case study: Greomi-Ticvanu Mare drainage arrangement</td>
<td>P. Castanhiera (Portugal)</td>
</tr>
<tr>
<td>17:00</td>
<td>100147</td>
<td>Surface runoff and soil physical properties as affected by subsurface drainage improvement of a heavy clay soil</td>
<td>L. Alakukku, E. Turtola et al. (Finland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Wednesday, June 16 – 10:15 to 12:00</strong></td>
<td></td>
</tr>
</tbody>
</table>

---

*6* XVIIth World Congress of the International Commission of Agricultural and Biosystems Engineering (CIGR) – Québec City, Canada – June 13-17, 2010
<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00</td>
<td>100188</td>
<td>Streamflow characteristics of a naturally drained forested watershed in southeast Atlantic coastal plain</td>
<td></td>
</tr>
<tr>
<td>11:20</td>
<td>100215</td>
<td>The effect of sampling frequency on the accuracy of nitrogen load estimates from drained loblolly pine plantations in eastern North Carolina</td>
<td></td>
</tr>
<tr>
<td>11:40</td>
<td>100162</td>
<td>Advances in sportsturf drainage</td>
<td></td>
</tr>
</tbody>
</table>

**Wednesday, June 16 – 10:15 to 12:00**

### 107 IDS Maps and Tools for Decision Makers

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>100078</td>
<td>National inventory of artificially drained lands in Germany</td>
<td></td>
</tr>
<tr>
<td>10:40</td>
<td>100271</td>
<td>Using earth observation data for soil drainage classification and mapping</td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td>100301</td>
<td>Certification of drainage contractor enterprises - experience in Québec</td>
<td></td>
</tr>
<tr>
<td>11:20</td>
<td>100243</td>
<td>Preliminary study of the WRSIS concept at the paddy-upland crops rotation area in southern China</td>
<td></td>
</tr>
<tr>
<td>11:40</td>
<td>100093</td>
<td>Impacts of the Chashma Right Bank Canal on land use and cropping pattern in D.I.Khan district (Pakistan)</td>
<td></td>
</tr>
</tbody>
</table>

**Wednesday, June 16 – 13:35 to 15:20**

### 120 IDS Treatment of Drainage Water

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>13:40</td>
<td>100073</td>
<td>Bioreactor design geometry effects on nitrate removal</td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>100171</td>
<td>Nitrate removal of drainage water with barley straw as a bioreactor filter</td>
<td></td>
</tr>
<tr>
<td>14:20</td>
<td>100207</td>
<td>Beyond the field: A look at agricultural ditch floodplains as a water quality BMP</td>
<td></td>
</tr>
<tr>
<td>14:40</td>
<td>100209</td>
<td>A decade later: the establishment, channel evolution, and stability of innovative two-stage agricultural ditches in the Midwest region of the United States</td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td>100229</td>
<td>Minnesota agricultural ditch reach assessment for stability (MADRAS): A decision support tool</td>
<td></td>
</tr>
</tbody>
</table>

**Wednesday, June 16 – 13:35 to 15:20**

### 121 IDS Drainage of Irrigated Lands

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>13:40</td>
<td>100037</td>
<td>Drainage of irrigated lands</td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>100145</td>
<td>Environmental and economic multi-objective model for managing irrigation and drain water</td>
<td></td>
</tr>
<tr>
<td>14:20</td>
<td>100225</td>
<td>Water redistribution within the potato root zone following irrigation</td>
<td></td>
</tr>
<tr>
<td>14:40</td>
<td>100227</td>
<td>Assessment of rootzone water redistribution in corn following irrigation</td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td>100228</td>
<td>Drainage design practices in irrigated agriculture; new concepts gained from recent experiences in three countries of Maghreb, North Africa</td>
<td></td>
</tr>
</tbody>
</table>

**Wednesday, June 16 – 10:15 to 12:00**

### 106 IDS Drainage From Forested Lands and other Land Uses

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>100261</td>
<td>A comparison of Mike she and DRAINMOD for modeling forested wetland hydrology in coastal south Carolina, USA</td>
<td></td>
</tr>
<tr>
<td>10:40</td>
<td>100185</td>
<td>Field evaluations of a forestry version of DRAINMOD-II model</td>
<td></td>
</tr>
</tbody>
</table>

---

**VIIth World Congress of the International Commission of Agricultural and Biosystems Engineering (CIGR) – Québec City, Canada – June 13-17, 2010**
**LIST OF ABSTRACTS BY PARTICIPATING GROUP**

| Abstract only | 100087 | Comparison of drainmod and artificial neural network for predicting water table depth and drain discharge in a subsurface drainage system. H. Ebrahimi, H. Qajghou, L. Aligiah, M. Parsinejad, B. Naseri, H. Noory (Iran) |
| Abstract only | 100106 | Application of drainmod-n model for predicting nitrate-n in paddy rice fields under controlled drainage in a coastal region of Iran. H. Noory, H.Z. Abyaneh, H. Noory, A.-M. Liaghat (Iran) |

**Symposium on Nanotechnologies Applied to Biosystems Engineering and the Environment**

**Wednesday, June 16 – 8:15 to 10:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td>100287</td>
<td>S. Neethirajan (Canada)</td>
<td>205A</td>
</tr>
<tr>
<td>8:20</td>
<td>100287</td>
<td>S. Neethirajan, F. Lin (Canada)</td>
<td>205A</td>
</tr>
<tr>
<td>8:40</td>
<td>1000304</td>
<td>N. Chorfa, S. Hamoudi, J. Arul et al. (Canada)</td>
<td>205A</td>
</tr>
<tr>
<td>9:00</td>
<td>100061</td>
<td>D. Qi, N. Tagashira, S. Hagiwara et al. (Japan)</td>
<td>205A</td>
</tr>
<tr>
<td>9:20</td>
<td>101402</td>
<td>Improvement of nutritional benefits in foods by incorporation of starch-antioxidant assemblies</td>
<td>205A</td>
</tr>
<tr>
<td>9:40</td>
<td>101357</td>
<td>Stability of nano-emulsified lycopene under thermal processing</td>
<td>205A</td>
</tr>
</tbody>
</table>

**Wednesday, June 16 – 10:15 to 12:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>101118</td>
<td>S. Hamoudi, A. El-Nemr, K. Belkacemi (Canada)</td>
<td>205A</td>
</tr>
<tr>
<td>10:20</td>
<td>100050</td>
<td>Alkanaline/ionic liquid microemulsions: Enhanced CO2 capture ability with curbed corrosion behaviour. M. Hasib-Ur-Rahman, M. Siaj, F. Larachi (Canada)</td>
<td>205A</td>
</tr>
<tr>
<td>10:40</td>
<td>101305</td>
<td>Adsorptive removal of phosphate anions from aqueous solutions using functionalized SBA-15: Effects of the organic functional group</td>
<td>205A</td>
</tr>
<tr>
<td>11:00</td>
<td>100368</td>
<td>Development of carbon dioxide (CO2) sensor using polymer nanoparticles for grain quality monitoring</td>
<td>205A</td>
</tr>
<tr>
<td>11:20</td>
<td>101351</td>
<td>Effect of silver nanoparticles for protection of seeds in different soils</td>
<td>205A</td>
</tr>
<tr>
<td>11:40</td>
<td>101456</td>
<td>A variable rate grain drill for planting seeds treated with silver nanoparticles</td>
<td>205A</td>
</tr>
</tbody>
</table>

**Wednesday, June 16 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Poster #</th>
<th>Paper #</th>
<th>Moderators</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>100213</td>
<td>57</td>
<td>Khaled Belkacemi and Joseph Arul (Canada)</td>
<td>2000D</td>
</tr>
<tr>
<td>100559</td>
<td>58</td>
<td>B.A.C. Siaotong, S. Panigrahi, L. Tabil (Canada)</td>
<td>2000D</td>
</tr>
</tbody>
</table>

**Special Interdisciplinary Session on Education**

**Wednesday, June 16 – 10:15 to 12:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>100058</td>
<td>S. Hamoudi, A. El-Nemr, K. Belkacemi (Canada)</td>
<td>2102B</td>
</tr>
<tr>
<td>10:20</td>
<td>100059</td>
<td>A dean’s perspective on the future of agricultural engineering education in Canada</td>
<td>2102B</td>
</tr>
<tr>
<td>10:40</td>
<td>101663</td>
<td>Irenilza Alencar Neas (Brazil)</td>
<td>2102B</td>
</tr>
<tr>
<td>11:00</td>
<td>-</td>
<td>Engineering Education for Agriculture, Food Systems, and Biosystems</td>
<td>2102B</td>
</tr>
</tbody>
</table>

**SECTION I Land and Water Engineering (including EnviroWater 2010)**

**Monday, June 14 – 10:15 to 12:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>100883</td>
<td>S. Hamoudi, A. El-Nemr, K. Belkacemi (Canada)</td>
<td>2000D</td>
</tr>
<tr>
<td>10:40</td>
<td>100561</td>
<td>Investigating the potential for rice production with sprinkler irrigation</td>
<td>2000D</td>
</tr>
<tr>
<td>11:00</td>
<td>101118</td>
<td>Searching for improved irrigation scheduling alternatives for horticultural crops in the humid tropics</td>
<td>2000D</td>
</tr>
<tr>
<td>11:20</td>
<td>100292</td>
<td>Water use from shallow good quality and saline water tables in lysiometric experiment in a semiarid region of Iran</td>
<td>2000D</td>
</tr>
<tr>
<td>11:40</td>
<td>100254</td>
<td>Deficit irrigation as an agricultural water management system for corn: a review</td>
<td>2000D</td>
</tr>
</tbody>
</table>

**Monday, June 14 – 10:15 to 12:00**

**SECTION I Water Management and Soil Properties – POSTERS**

<table>
<thead>
<tr>
<th>Poster #</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>100552</td>
<td>1</td>
<td>N. Aghilinategh, A. Hemmat, M. Sadeghi (Iran)</td>
<td>2000D</td>
</tr>
<tr>
<td>100556</td>
<td>2</td>
<td>N. Aghilinategh, A. Hemmat, M. Sadeghi (Iran)</td>
<td>2000D</td>
</tr>
</tbody>
</table>
1. 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)

2. Effects of the crop root on the soil phys properties and soil water transport environment
   K. Yuge, M. Anan (Japan)

3. Effects of mechanical aeration on the compaction and permeability of a grassy sward
   S. Chehabli, M. Khefli, K. Abrougui (Tunisia/Canada)

4. Wastewater reclamation and reuse practices for agriculture in Korea
   E. J. Lee, S. W. Park, C. H. Seong et al. (Republic Of Korea)

5. Farmers mitigation and adaptation options to salinity in Sicily
   N. Colonna, D. Rapti–Caputo, F. Lupia et al. (Italy)

6. The potential of using a new agricultural system for improving water productivity of wheat
   A. A.–A. Abooueika (United States)

7. Use of two drippers spacing in the same lateral line and their effects on the wetted bulb formation, yield and quality of radish (Raphanus sativus L.)
   L. P. De Azevedo, J. C. C. Saad (Brazil)

8. Characterization of energy requirements in pressurized irrigation networks and evaluation of potential energy saving measures in southern Spain
   J. A. R. Diaz, E. C. Poyato, T. C. Cobo (Spain)

9. Improving the performance of landscape sprinkler irrigation through field evaluations and modelling
   G. C. Rodrigues, P. Paredes, M. I. Valín et al. (Portugal)

10. Use of two drippers spacing in the same lateral line and their effects on the wetted bulb formation, yield and quality of radish (Raphanus sativus L.)
    L. P. De Azevedo, J. C. C. Saad (Brazil)

11. Use of a distributed water circulation model
    Impact assessment of climate change on irrigation by a distributed water circulation model
    C. Bellamy, A. Khalilian, H. Farahani et al. (United States)

12. Method to suppress or remove blue-green algae in the pond of large area by micro bubbles
    J. Yu, H. Liu, J. Shi et al. (China/Israel)

13. Advanced technologies applied to hose reel rain-gun machines: New perspectives towards sustainable sprinkler irrigation
    G. Ghinassi (Italy)

14. 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)

15. Crop coefficient of cowpea bean in Piauí State, Brazil
    M. O. Alatise (Nigeria)

16. Effect of water stress on yield and yield components of two wheat cultivars
    M. Najmaei, A. Soleymani, A. R. Golparvar (Iran)

17. Several groundwater levels affecting sorghum plants in Limpopo Province of South Africa
    M. Sulis, C. Paniconi, C. Riva et al. (Canada)

18. Use of agricultural census data for the estimation of irrigation water consumption at farm level
    F. Lupia, I. Namdarian, F. D. Santis (Italy)

19. Method to suppress or remove blue-green algae in the pond of large area by micro bubbles
    T. Nakashima, Y. Hirata (Japan)

20. Effect of water stress on yield and yield components of two wheat cultivars
    F. Montero-Garcia, F. Montero-Riquelme, A. Brasa-Ramos et al. (Spain/Netherlands)

21. 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 – 10:15 to 12:00

48. Impact assessment of climate change on irrigation by a distributed water circulation model
    T. Masumoto, R. Kudo, T. Yoshida et al. (Japan)
<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:35</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>15:40</td>
<td>101193</td>
<td>Application of mathematical models of water in irrigated bean crop under no-tillage system</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>101050</td>
<td>Development of reference evapotranspiration models with limited data by using artificial neural networks structures</td>
<td></td>
</tr>
<tr>
<td>16:20</td>
<td>101164</td>
<td>The dual crop coefficient approach: Application of the SimDualKc model to winter wheat in North China Plain</td>
<td></td>
</tr>
<tr>
<td>16:40</td>
<td>100501</td>
<td>Simulation of site-specific irrigation control strategies with sparse input data</td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td>100362</td>
<td>The relation between non-irrigated planting at sandy land and micrometeorological alleviation in Ningxia, China</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:15</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>8:20</td>
<td>100549</td>
<td>Mathematical models for flood management: Efficiency and reliability</td>
<td></td>
</tr>
<tr>
<td>8:40</td>
<td>100627</td>
<td>Soil bioengineering techniques in flood risk mitigation in Friuli Venezia Region</td>
<td></td>
</tr>
<tr>
<td>9:00</td>
<td>100159*</td>
<td>Storage and reuse of drainage water</td>
<td></td>
</tr>
<tr>
<td>9:20</td>
<td>100684</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:40</td>
<td>100695</td>
<td>Simulation of the irrigation for furrow for the model</td>
<td></td>
</tr>
<tr>
<td>9:00</td>
<td>100127</td>
<td>Sensibility to the empirical parameters of the form of the furrow</td>
<td></td>
</tr>
<tr>
<td>9:20</td>
<td>100684</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:40</td>
<td>100695</td>
<td>Simulation of the irrigation for furrow for the model</td>
<td></td>
</tr>
<tr>
<td>9:00</td>
<td>100127</td>
<td>Sensibility to the empirical parameters of the form of the furrow</td>
<td></td>
</tr>
<tr>
<td>9:20</td>
<td>100684</td>
<td>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</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:40</td>
<td>101193</td>
<td>Application of mathematical models of water in irrigated bean crop under no-tillage system</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>101050</td>
<td>Development of reference evapotranspiration models with limited data by using artificial neural networks structures</td>
<td></td>
</tr>
<tr>
<td>16:20</td>
<td>101164</td>
<td>The dual crop coefficient approach: Application of the SimDualKc model to winter wheat in North China Plain</td>
<td></td>
</tr>
<tr>
<td>16:40</td>
<td>100501</td>
<td>Simulation of site-specific irrigation control strategies with sparse input data</td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td>100362</td>
<td>The relation between non-irrigated planting at sandy land and micrometeorological alleviation in Ningxia, China</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>8:20</td>
<td>100549</td>
<td>Mathematical models for flood management: Efficiency and reliability</td>
<td></td>
</tr>
<tr>
<td>8:40</td>
<td>100627</td>
<td>Soil bioengineering techniques in flood risk mitigation in Friuli Venezia Region</td>
<td></td>
</tr>
<tr>
<td>9:00</td>
<td>100159*</td>
<td>Storage and reuse of drainage water</td>
<td></td>
</tr>
<tr>
<td>9:20</td>
<td>100684</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:40</td>
<td>100695</td>
<td>Simulation of the irrigation for furrow for the model</td>
<td></td>
</tr>
<tr>
<td>9:00</td>
<td>100127</td>
<td>Sensibility to the empirical parameters of the form of the furrow</td>
<td></td>
</tr>
<tr>
<td>9:20</td>
<td>100684</td>
<td>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</td>
<td></td>
</tr>
</tbody>
</table>

Abstract only 100152 Ground water recharge in wagarwadi watershed through recharge process and ground water flow models

K.P. Gore, V.V.S. Gurunadharao, B.S. Naik, D. Barman (India)

Abstract only 100520 Integrated water supply management at watershed scale for agricultural purposes in a perspective of adaptation to climate change

Jean-François Cyri, Richard Turcotte, Charles Poirier, Diane Chaumont (Canada)
Monday, June 14 – 10:15 to 12:00
7 Section II Poultry
Time Paper # Moderator: Jiang 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 – 13:35 to 15:20
20 Section II Field Measurements, CFD and Abatement Techniques (II)
Time Paper # Moderator: Werner Berg (Denmark)
Room: 204A
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 biotickling 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. Balista, F. Pouliot, L. Urizar (United States/Canada)

Monday, June 14 – 13:35 to 15:20
21 Section II Swine (I)
Time Paper # Moderator: John Feddes (Canada)
Room: 205B
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/UK)
14:00 100921 Effect of a water-cooled cover on the thermal comfort of pregnant sows in high 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 – 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)

Tuesday, June 15 – 10:15 to 12:00
50 Section II Cattle (I)
Time Paper # Moderator: Joaquin Palacios (Canada)
Room: 205B
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)
LIST OF ABSTRACTS BY PARTICIPATING GROUP

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

Poster #  Paper #  Moderator: Heiko Georg (Germany)  Room: 2000D
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 photosensitive 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. Cardinale, 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)

Tuesday, June 15 – 13:35 to 15:20

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

Time  Paper #  Moderator: Daniel Berckmans (Belgium)  Room: 204A
13:35 100773  Intermittent measurement technique to estimate ammonia emission from manure storage  
A. Yousef, 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. Ikuguchi, H. Moriyama (Japan)
14:20 101061  Measurement method of ventilation rate with tracer gas method in open type livestock houses  
A. Ikuguchi, 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 Ikuguchi (Japan)

Tuesday, June 15 – 13:35 to 15:20

94 Section II  Simulation of Aerosol, Gas and Emission

Time  Paper #  Moderator: Bjørne Bjerg (Denmark)  Room: 204A
8:15 100031  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, J.-B. Lee, H.-S. Hwang et al. (Korea/Philippines)

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)

Tuesday, June 15 – 13:35 to 17:20

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

Time  Paper #  Moderator: Theo Demmers (UK)  Room: 204A
9:40 100908  Using earthen base stalls with sand bedding 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. Jansen (Denmark)

Tuesday, June 15 – 15:35 to 17:20

80 Section II  Manure Handling

Time  Paper #  Moderator: Frederic Pelletier (Canada)  Room: 204B
15:35 100042  Flush systems for dairy manure removal: the Alley roughness value  
E. Bresci, P. Ferrari, A. Gacomin, 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)

Wednesday, June 16 – 8:15 to 10:00

94 Section II  Simulation of Aerosol, Gas and Emission

Time  Paper #  Moderator: Bjørne Bjerg (Denmark)  Room: 204A
8:15 100031  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, J.-B. Lee, H.-S. Hwang et al. (Korea/Philippines)
### Session II

**Reduction of Ammonia and Odour Emission (II)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td>101163</td>
<td>Sven Nimmermark (Sweden)</td>
<td>204A</td>
</tr>
<tr>
<td>10:15</td>
<td>100659</td>
<td>Session Opening</td>
<td>205B</td>
</tr>
<tr>
<td>12:00</td>
<td>100677</td>
<td>Session Opening</td>
<td>205B</td>
</tr>
</tbody>
</table>

#### Abstract only 101373

**Anaerobic co-fermentation process using the swine manure with organic byproduct**
In Hwan Oh, W.G. Kim (Korea)

### Session II-B

**Aquacultural Engineering**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>101079</td>
<td>Ed Aneshansley (USA)</td>
<td>205B</td>
</tr>
<tr>
<td>12:00</td>
<td>100899</td>
<td>Larry Dean Jacobson (USA)</td>
<td>205B</td>
</tr>
</tbody>
</table>

#### Abstract only 101373

**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)

### SESSION II-B

**Aquaculture Systems**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>101356</td>
<td>Ed Aneshansley (USA)</td>
<td>205B</td>
</tr>
<tr>
<td>12:00</td>
<td>100995</td>
<td>Thomas Banhazi (Australia)</td>
<td>205B</td>
</tr>
</tbody>
</table>

#### Abstract only 101373

**A fully integrated marine environmental aquaculture recirculation system (MEARS™) in conjunction with the environmental recirculation of waste**
R.J. Bishop (United States)

---

**Reduction of Ammonia and Odour Emission (II)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td>101163</td>
<td>Sven Nimmermark (Sweden)</td>
<td>204A</td>
</tr>
<tr>
<td>10:15</td>
<td>100659</td>
<td>Session Opening</td>
<td>205B</td>
</tr>
<tr>
<td>12:00</td>
<td>100677</td>
<td>Session Opening</td>
<td>205B</td>
</tr>
</tbody>
</table>

#### Abstract only 101373

**Anaerobic co-fermentation process using the swine manure with organic byproduct**
In Hwan Oh, W.G. Kim (Korea)
### SECTION III

#### Equipment Engineering for Plants

**Monday, June 14 – 10:15 to 12:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Carol Plouffe (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>100613</td>
<td>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. Ademosa, L.A.S. Agbeyeye et al. (Nigeria)</td>
</tr>
<tr>
<td>11:00</td>
<td>100791</td>
<td>Comparison of cleaning performance for row cleaners on a strip tillage implement R.C. Roberge, T.G. Crowe, M. Roberge (Canada)</td>
</tr>
<tr>
<td>11:20</td>
<td>100975</td>
<td>Reducing friction by ultrasonic vibration exemplified by tillage R. Kattenstroth, H. – H. Harms, W. Wurpts et al. (Germany)</td>
</tr>
<tr>
<td>11:40</td>
<td>101409</td>
<td>Effect of long term crop rotation and fertilization on moldboard plow draft in a clay–loam soil N.B. McAulhign, C.F. Drury, W.D. Reynolds et al. (Canada)</td>
</tr>
</tbody>
</table>

**Monday, June 14 – 13:15 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Martin Roberge (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>100897</td>
<td>Development of a water catcher for high pressure water jet cutting of agricultural goods D. Juenemann, H.-H. Harms (Germany)</td>
</tr>
<tr>
<td>14:00</td>
<td>101031</td>
<td>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)</td>
</tr>
<tr>
<td>14:20</td>
<td>100851</td>
<td>Effect of various operational and design parameters on the performance of a rotary feeding and cutting system E. Veelke, M. Roberge, V. Meda (Canada)</td>
</tr>
<tr>
<td>15:00</td>
<td>100316</td>
<td>Comparative analysis of the threshing cylinders performance on sorghum K. J. Simonyan, I. S. Dunmade (Nigeria/Canada)</td>
</tr>
</tbody>
</table>

**Monday, June 14 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Roger Thériault (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>101122</td>
<td>Effects of some cutting blade and plant factors on specific cutting energy of sugarcane stalk J. Razavi, M. Kardany, A. Masoumi (Iran)</td>
</tr>
<tr>
<td>15:00</td>
<td>100316</td>
<td>Comparative analysis of the threshing cylinders performance on sorghum K. J. Simonyan, I. S. Dunmade (Nigeria/Canada)</td>
</tr>
</tbody>
</table>

### SECTION III

#### Soil Tillage Equipment and Analysis (I)

**Monday, June 14 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Carol Plouffe (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>100514</td>
<td>Tillage effects on soil and production management for winter wheat in southwest Turkey Z. B. Barut, S. Aykanat, M. M. Turgut (Turkey)</td>
</tr>
</tbody>
</table>

**Monday, June 14 – 10:15 to 12:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Carol Plouffe (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>100613</td>
<td>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. Ademosa, L.A.S. Agbeyeye et al. (Nigeria)</td>
</tr>
<tr>
<td>11:00</td>
<td>100791</td>
<td>Comparison of cleaning performance for row cleaners on a strip tillage implement R.C. Roberge, T.G. Crowe, M. Roberge (Canada)</td>
</tr>
<tr>
<td>11:20</td>
<td>100975</td>
<td>Reducing friction by ultrasonic vibration exemplified by tillage R. Kattenstroth, H. – H. Harms, W. Wurpts et al. (Germany)</td>
</tr>
<tr>
<td>11:40</td>
<td>101409</td>
<td>Effect of long term crop rotation and fertilization on moldboard plow draft in a clay–loam soil N.B. McAulhign, C.F. Drury, W.D. Reynolds et al. (Canada)</td>
</tr>
</tbody>
</table>

**Monday, June 14 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Martin Roberge (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>100897</td>
<td>Development of a water catcher for high pressure water jet cutting of agricultural goods D. Juenemann, H.-H. Harms (Germany)</td>
</tr>
<tr>
<td>14:00</td>
<td>101031</td>
<td>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)</td>
</tr>
<tr>
<td>14:20</td>
<td>100851</td>
<td>Effect of various operational and design parameters on the performance of a rotary feeding and cutting system E. Veelke, M. Roberge, V. Meda (Canada)</td>
</tr>
<tr>
<td>15:00</td>
<td>100316</td>
<td>Comparative analysis of the threshing cylinders performance on sorghum K. J. Simonyan, I. S. Dunmade (Nigeria/Canada)</td>
</tr>
</tbody>
</table>

### SECTION III

#### Cutting and Threshing Mechanisms

**Monday, June 14 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Roger Thériault (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>101122</td>
<td>Effects of some cutting blade and plant factors on specific cutting energy of sugarcane stalk J. Razavi, M. Kardany, A. Masoumi (Iran)</td>
</tr>
<tr>
<td>15:00</td>
<td>100316</td>
<td>Comparative analysis of the threshing cylinders performance on sorghum K. J. Simonyan, I. S. Dunmade (Nigeria/Canada)</td>
</tr>
</tbody>
</table>

### SECTION III

#### Field Equipment – POSTERS

**Monday, June 14 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Roger Thériault (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>101122</td>
<td>Effects of some cutting blade and plant factors on specific cutting energy of sugarcane stalk J. Razavi, M. Kardany, A. Masoumi (Iran)</td>
</tr>
<tr>
<td>15:00</td>
<td>100316</td>
<td>Comparative analysis of the threshing cylinders performance on sorghum K. J. Simonyan, I. S. Dunmade (Nigeria/Canada)</td>
</tr>
</tbody>
</table>

### XVIIth World Congress of the International Commission of Agricultural and Biosystems Engineering (CIGR) – Québec City, Canada – June 13-17, 2010
Monday, June 14 – 15:35 to 17:00

38 Section III Crop Management

Time Paper # Moderator: Hubert Landry (Canada)
15:35 Session Opening Room: 203
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. Galamboslová, 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)

Tuesday, June 15 – 10:15 to 12:00

53 Section III Crop Protection and Weed Control (I)

Time Paper # Moderator: Bernard Panneton (Canada)
10:15 Session Opening Room: 203
10:20 100076 Liquid distribution of air induction and off-center spray nozzle used to apply agrochemicals in special condition R. G. Vilana, 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 fruiculture: 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)
Reducing the dispersion of seed coating particles containing neonicotinoids in maize seedling
D. Pessina, D. Facchinetti (Italy)

The design and experimental study of a testing stand for pneumatic seed metering device
W. Z. Liu (China)

Determination of crop quality with different types of sugar beet harvesters
A. Bayaz, A. Colak, B. Eminoglu et al. (Turkey)

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

Comparison of energy requirements of traditional and conservative soil tillage for maize cultivation in central Italy
R. Fargiuli, C. Cervellini, G. Brannetti et al. (Italy)

Development of peach harvesting end-effector with function for estimation of degree of ripeness
K. Kito, W.X. Lun, H. Goto (Japan)

Using artificial neural networks for discrimination the corn plants from the weeds
S. Kiani, A. Jafari, Z. Azimifar (Iran)

Design of a mechanical release system of Perillus bioculatus to control the Colorado potato beetle, Leptinotarsa decemlineata (SAY)
S. De Ladurantaye, M. Khelifi (Canada)

Thermal control of hazelnut suckers
R. Tomasevic, T. Perez, C. Cedrola et al. (Italy)

Mechanical control of quackgrass in grassland
R. Khorchani, M. Khelifi, M. Bournival (Canada)

Test bench for mechanical distribution of predators to control insect pests
M. Khelifi, P. Paré, Y. De Ladurantaye (Canada)

Automatic weed control system for processing tomatoes
D.C. Slaughter, M. Pérez, C. Gliever et al. (USA/Spain)

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)

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)

Effects of the machine wheel load on grass yield
O. Green, R. N. Jørgensen, K. Kristensen et al. (Denmark)

Development of a distribution system for measuring nozzle integrative parameter
X. Xue, J. Liang, P. Liu et al. (China/United States)

The effect of fan frequency on the droplet spraying swath of air-aided sprayer
S. Song, T. Hong, D. Sun et al. (China)

Evaluating chips quality by the analysis of two discrete element method
M. A.-A. Sadek, Y. Chen, C. Laguë et al. (Canada)

Evaluation of chips quality by the analysis of two different harvesting methodologies
R. Pecenka, C. Fürll, H.-J. Gusovius (Germany)

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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Abstract only</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>100240</td>
<td>Design and manufacture of a new and simple mechanism for transmission of power between crossover shafts up to 135 degrees for farm machinery M. Yaghoubi, S.S. Mohtasebi, A. Jafari, H. Khaleghi (Iran)</td>
</tr>
<tr>
<td>13:40</td>
<td>100238</td>
<td>SESSION IV Energy in Agriculture</td>
</tr>
</tbody>
</table>

### SECTION IV Energy in Agriculture

#### Monday, June 14 – 10:15 to 12:00

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Jay Martin (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>100688</td>
<td>Session Opening</td>
</tr>
<tr>
<td>10:20</td>
<td>101095</td>
<td>Life cycle assessment of agricultural biogas production systems J. Lamsche, J. Müller (Germany)</td>
</tr>
<tr>
<td>10:40</td>
<td>101515</td>
<td>Anaerobic digestion and related best management practices: Utilizing life cycle assessment M.Z. Venczel, S.E. Powers (United States)</td>
</tr>
<tr>
<td>11:00</td>
<td>101515</td>
<td>Positioning anaerobic digestion systems in the swine sector in Québec: A technical and economic study M.-A. Ricard, C.B. Laffamme, C. Charest et al. (Canada/France)</td>
</tr>
<tr>
<td>11:20</td>
<td>10132</td>
<td>Biogas production from separated slurry as a slurry management strategy: A consequential life cycle assessment L. Hamelin, M. Wesnaes, H. Wenzel et al. (Denmark)</td>
</tr>
</tbody>
</table>

#### Tuesday, June 15 – 13:35 to 15:20

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Zoltán Sibalszky (Hungary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>100658</td>
<td>Session Opening</td>
</tr>
<tr>
<td>13:40</td>
<td>100724</td>
<td>Optimization and control of a novel upflow anaerobic solid-state (UASS) reactor J. Mumme, B. Linke, R. Töle (Germany)</td>
</tr>
<tr>
<td>14:00</td>
<td>101041</td>
<td>Drying characteristics and nitrogen loss of biogas digestate during drying process C. Maurer, J. Müller (Germany)</td>
</tr>
<tr>
<td>14:20</td>
<td>101578</td>
<td>Biodyrving of animal slaughterhouse residues and heat production Yves Bernard (Canada)</td>
</tr>
<tr>
<td>14:40</td>
<td>101311</td>
<td>Transforming anaerobic digestion with the “Model T” of digesters J.F. Martin, R. Ciotola, J. Castano et al. (United States) Bioreactors E. Jamaleddine (Canada)</td>
</tr>
</tbody>
</table>

---

**Monday, June 14 – 15:35 to 17:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Frédéric Pelletier (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:35</td>
<td>101387*</td>
<td>Session Opening</td>
</tr>
<tr>
<td>15:40</td>
<td>101597*</td>
<td>Microbial community analysis of ambient temperature anaerobic digesters R. Ciotola (United States)</td>
</tr>
<tr>
<td>16:00</td>
<td>101113*</td>
<td>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)</td>
</tr>
<tr>
<td>16:20</td>
<td>101052</td>
<td>Impact of harvesting time on ultimate methane yield of switchgrass grown in Eastern Canada Y. Gilbert, D. Massé, P. Savoie et al. (Canada)</td>
</tr>
<tr>
<td>16:40</td>
<td>101283</td>
<td>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)</td>
</tr>
</tbody>
</table>

---

**Tuesday, June 15 – 10:15 to 12:00**

**54 Section IV Biofuels**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Guillaume Pilon (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>100337</td>
<td>Session Opening</td>
</tr>
<tr>
<td>10:20</td>
<td>100880</td>
<td>Potentials of biofuels</td>
</tr>
<tr>
<td>10:40</td>
<td>101073</td>
<td>Energy and CO2 eq analysis of the agricultural phase in the sunflower biodiesel chain P. Spagnoli, R. Dainelli, L. D’Avino et al. (Italy)</td>
</tr>
<tr>
<td>11:20</td>
<td>101214</td>
<td>Energy analysis of biochemical conversion processes of biomass to bioethanol M.D. Bakari, M. Ngadi, T. Bergthorson (Canada)</td>
</tr>
<tr>
<td>11:40</td>
<td>101283</td>
<td>Cultivation and utilization of specific wood biomass for synthesis of cellulose based bioethanol L. Fara, C. Cinuc, G. Hubca et al. (Romania)</td>
</tr>
</tbody>
</table>

---

**Monday, June 15 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Amit Kumar (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>100457</td>
<td>Session Opening</td>
</tr>
<tr>
<td>13:40</td>
<td>100459</td>
<td>A review of standards related to biomass combustion J. Villeneuve, P. Savoie (Canada)</td>
</tr>
<tr>
<td>14:00</td>
<td>100804</td>
<td>Handling of corn stover bales for combustion in small and large furnaces R. Morisette, P. Savoie, J. Villeneuve (Canada)</td>
</tr>
<tr>
<td>14:20</td>
<td>100941</td>
<td>Power from triticale straw D. Nattanayake, A. Kumar (Canada)</td>
</tr>
<tr>
<td>14:40</td>
<td>100434</td>
<td>Greenhouse gas mitigation potential of short-rotation coppice based generation of electricity in Germany A. Hansen, A. M.-A., J. Kern et al. (Germany)</td>
</tr>
</tbody>
</table>

---

**Tuesday, June 15 – 15:35 to 17:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Axel Munack (Germany)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:35</td>
<td>100296</td>
<td>Session Opening</td>
</tr>
<tr>
<td>15:40</td>
<td>100226</td>
<td>Utilization of residual biochar produced from the pyrolysis of energy crops for soil enrichment G. Pilon, J.-M. Lavoie (Canada)</td>
</tr>
<tr>
<td>16:00</td>
<td>100429</td>
<td>Material and operating variables affecting the physical quality of biomass briquettes Y. Song, J. S. Tumuluru, K. L. Iroba et al. (China/Canada)</td>
</tr>
<tr>
<td>16:20</td>
<td>100827</td>
<td>Biochar production for carbon sequestration J. Thakkar, A. Kumar (Canada)</td>
</tr>
</tbody>
</table>

---

**Energy in Agriculture**

- **Design and Modeling**
  - Moderator: Claude Laguë (Canada)
  - Room: 205A
- **Optimization and control of a tractor engine crankshaft in knocking phenomenon**
  - E. Mahmood, A. Jafari, S. Rafiee (Iran)
- **Decomposition of hemp (Cannabis sativa) fibers using drop weight impact: Fiber yield and properties**
  - Md. M. R. Khan, Y. Chen, C. Laguë et al. (Canada)
- **Theoretical analysis of energy requirement for hemp decorticators**
  - J. Xu, Y. Chen, C. Laguë et al. (Canada)
- **Aerodynamic properties of hemp fibre and core**
  - S. Parvin, Y. Chen, C. Laguë et al. (Canada)
- **Development of a system for pattern operations**
  - M. Gebben, G. Kormann (Germany)

---

**Thursday, June 16 – 10:15 to 12:00**

**70 Section IV Combustion and GHG**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Axel Munack (Germany)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>100688</td>
<td>Session Opening</td>
</tr>
<tr>
<td>10:20</td>
<td>101095</td>
<td>Potentials of biofuels</td>
</tr>
<tr>
<td>10:40</td>
<td>101515</td>
<td>Energy and CO2 eq analysis of the agricultural phase in the sunflower biodiesel chain P. Spagnoli, R. Dainelli, L. D’Avino et al. (Italy)</td>
</tr>
<tr>
<td>11:20</td>
<td>101214</td>
<td>Energy analysis of biochemical conversion processes of biomass to bioethanol M.D. Bakari, M. Ngadi, T. Bergthorson (Canada)</td>
</tr>
<tr>
<td>11:40</td>
<td>101283</td>
<td>Cultivation and utilization of specific wood biomass for synthesis of cellulose based bioethanol L. Fara, C. Cinuc, G. Hubca et al. (Romania)</td>
</tr>
</tbody>
</table>

---

**Tuesday, June 15 – 13:35 to 15:20**

**84 Section IV Biochar and Energy**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Zoltán Sibalszky (Hungary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>100658</td>
<td>Session Opening</td>
</tr>
<tr>
<td>13:40</td>
<td>100724</td>
<td>Optimization and control of a novel upflow anaerobic solid-state (UASS) reactor J. Mumme, B. Linke, R. Töle (Germany)</td>
</tr>
<tr>
<td>14:00</td>
<td>101041</td>
<td>Drying characteristics and nitrogen loss of biogas digestate during drying process C. Maurer, J. Müller (Germany)</td>
</tr>
<tr>
<td>14:20</td>
<td>101578</td>
<td>Biodyrving of animal slaughterhouse residues and heat production Yves Bernard (Canada)</td>
</tr>
<tr>
<td>14:40</td>
<td>101311</td>
<td>Transforming anaerobic digestion with the “Model T” of digesters J.F. Martin, R. Ciotola, J. Castano et al. (United States) Bioreactors E. Jamaleddine (Canada)</td>
</tr>
</tbody>
</table>


**LIST OF ABSTRACTS BY PARTICIPATING GROUP**

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)

**Wednesday, June 16 – 8:15 to 10:00**

98 **Section IV** Renewable Energy and Assessment

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Guangnan Chen (Australia) Room: 2102B</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td>100982</td>
<td></td>
</tr>
<tr>
<td>8:20</td>
<td>101116</td>
<td></td>
</tr>
<tr>
<td>8:40</td>
<td>101564</td>
<td></td>
</tr>
<tr>
<td>9:00</td>
<td>101636</td>
<td></td>
</tr>
<tr>
<td>9:20</td>
<td>100776</td>
<td></td>
</tr>
<tr>
<td>9:40</td>
<td>100435</td>
<td></td>
</tr>
</tbody>
</table>

8:40 100646 Continuous fermentative hydrogen production in different process conditions
N. Nasirian, M. Almassi, S. Mineae 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 – 10:15 to 12:00**

114 **Section IV** Biofuels and Biogas – POSTERS

<table>
<thead>
<tr>
<th>Poster #</th>
<th>Paper #</th>
<th>Moderator: Naveen Patil (Canada) Room: 2000D</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>100404</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>100862</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>101467</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>100646</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>100839</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>100492</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>101302</td>
<td></td>
</tr>
</tbody>
</table>

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 100862 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. Pichocki (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. Hnata et al. (Japan)

49 101302 Design of a 60MW CFB gasification system (CGAS) for Uganda—Utilising rice husks as input fuel
F. Amanyire, D. Bagamuhunda (Uganda)

**Wednesday, June 16 – 13:35 to 15:20**

128 **Section IV** Biomass, Compost and Energy Assessment - POSTERS

<table>
<thead>
<tr>
<th>Poster #</th>
<th>Paper #</th>
<th>Moderator: Yannick de la Durantaye (Canada) Room: 2000D</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>100447</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>100527</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>100576</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>101133</td>
<td></td>
</tr>
</tbody>
</table>

66 100447 Preliminary investigation into the pressing process of sweet pearl millet and sweet sorghum biomass for ethanol production
M. Crepeau, M. Kheflil, 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)

**Monday, June 14 – 10:15 to 12:00**

11 **Section V** Ergonomics and Agriculture – POSTERS

<table>
<thead>
<tr>
<th>Poster #</th>
<th>Paper #</th>
<th>Moderator: Katja Heitkämper (Switzerland) Room: 2000D</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>100815</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>101197</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>101243</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>100994</td>
<td></td>
</tr>
</tbody>
</table>

11 100815 “APR System”, a new design to increase workers safety in greenhouses maintenance operations
A. Carreño, J. Perez, A. Callejón 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)

**Monday, June 14 – 13:35 to 15:20**

26 **Section V** Ergonomics and Safety

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator: Ladišlav Nozdrovčik (Slovakia) Room: 2105</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>100263</td>
<td></td>
</tr>
<tr>
<td>13:40</td>
<td>100312</td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>101064</td>
<td></td>
</tr>
</tbody>
</table>

26 100263 Ergonomic aspects of operation of IT systems in precision agriculture
T. Juliszewski, M. Walczykova (Poland)

13:40 100312 Work economics and ergonomics in dairy farming
K. Heitkämper, M. Riegel, M. Schick (Switzerland)

14:00 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 – 15:35 to 17:00**

41 **Section V** Technology for Improved Management – POSTERS

<table>
<thead>
<tr>
<th>Poster #</th>
<th>Paper #</th>
<th>Moderator: Remigio Bernuto (Italy) Room: 2000D</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>100948</td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>101086</td>
<td></td>
</tr>
</tbody>
</table>

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. Torta, P. Barge, P. Gay et al. (Italy)
Tuesday, June 15 – 10:15 to 12:00

**55 Section V**  
**Human Workload in Agriculture**

**Time** | **Paper #** | **Moderator** | **Room**
--- | --- | --- | ---
10:15 | 100950 | Tadeusz Juliszewski (Poland) | 204B
10:20 | Using the CUELA system to study workload in agriculture | M. Kauke, J. Hermanns, U. Hoehne-Hueckstaedt et al. (Switzerland/Germany) | Room: 204B
10:40 | Workload assessment in agriculture – integration in a work budget system | K. Heitkämper, M. Schick, R. Stark et al. (Switzerland) | Room: 204B
11:00 | Analysis and assessment of workload in different types of milking parlours using the CUELA-System | M. Kauke, U. Hoehne-Hueckstaedt, I. Hermanns et al. (Switzerland/Germany) | Room: 204B
11:20 | Calculation and planning farm management tasks in pig and dairy farming | C. Moris (Switzerland) | Room: 204B
11:40 | Development of an experimental system for agricultural work process measurement | A. Bechar, A. Ronen (Israel) | Room: 204B

Tuesday, June 15 – 13:35 to 15:20

**71 Section V**  
**Crop and Biomass Logistics (I)**

**Time** | **Paper #** | **Moderator** | **Room**
--- | --- | --- | ---
13:35 | Session Opening | | | 
13:40 | Calculation of transportation energy for biomass collection | G. Kanai, K. Takekura, H. Kato et al. (Japan) | Room: 204B
14:00 | Agricultural fleet management: An operational research approach | D. D. Bochtis, C. G. Serenoses (Denmark) | Room: 204B
14:20 | Interfacing feedstock logistics with bioenergy conversion | S. Sokhansanj (Canada) | Room: 204B
14:40 | Energy expense by logistics within sugarcane’s energy production chain – two case studies | T.L. Romanelli, R. Bemut, P. Busato et al. (Brazil/Italy) | Room: 204B
15:00 | Technological and organizational development potentials for grain logistic in Germany | H. Bernhardt, W. Livfeld, D. Engelshardt (Germany) | Room: 204B

Monday, June 14 – 10:15 to 12:00

**12 Section VI**  
**Food Processing (I)**

**Time** | **Paper #** | **Moderator** | **Room**
--- | --- | --- | ---
10:15 | Session Opening | | | 
10:20 | Development of model equations for selecting optimum parameters for dry process of shea butter extraction | A. M. Olanyan, K. Oje (Nigeria) | Room: 204B
10:40 | Acrylamide mitigation in fried potato slices by using commercial asparaginase | F. Pedreschi, K. Granby, J. Rism (Chile/Denmark) | Room: 204B
11:00 | Microwave-assisted separation of eggshell and membrane | A. Hussain, S. Dev, Y. Gariepy et al. (Canada) | Room: 204B
11:20 | Prediction of lactic-bacteria growth in turkey ham processed by high hydrostatic pressure | S.P. Mathias, A. Rosenthal, A. Gaspar et al. (Brazil/France) | Room: 204B
11:40 | Combined effects of freezing and storage conditions on the staling of cooked rice | S. F. Yu, Y. Ma, D. Tian et al. (China/Ireland) | Room: 204B
Monday, June 14 – 13:35 to 15:20

28 Section VI Spectroscopy and Image Analysis – POSTERS
Poster # Paper # Moderator: Da-Wen Sun (Ireland)
Room: 2000D
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. Tomegrosa, 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. Yamane, I. Ibara 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-Gafravate, A. Moya-González, P. Barreiro (Spain)
38 101082 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. Isbag, 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

42 Section VI Food Processing (III)
Time Paper # Moderator: Martin Mondor (Canada)
Room: 2104AB
15:35 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.
S. M. M. Diego, C. M. Manrique, F. S. Ricardo et al. (Cuba)
16:40 101062 Enhancement of extraction efficiency of citrus juice and sags by twin oblique air jet moves in 3D space
M. R. Mirian, J. Khazaei (Iran)

Monday, June 14 – 13:35 to 17:00

43 Section VI Nutraceuticals and Functional Foods (II)
Time Paper # Moderator: Vijaya Raghavan (Canada)
Room: 2105
15:35 100781 Microwave-assisted methodology for quantitative analysis of lignans in foods
S. M. Nemes, V. Orsat, G. S. V. Raghavan (Canada)
16:00 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)
57  Section VI  Food Properties (I)

Time  Paper #  Moderator: Cristina Ratti (Canada)
Room: 2105
10:15  100242  Session Opening
10:20  Thermo-physical and textural properties of meat and carrot agglutinate particles fabricated for biological validation studies
H. F. Hassan, H. S. Ramaswamy (Canada)

58  Section VI  Nutraceutical and Functional Foods – POSTERS

Posters: 10:40 - 12:00

Monday, June 14 – 15:35 to 17:00
44  Section VI  Drying, Dehydration and Deactivation – POSTERS

Poster #  Paper #
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. 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 dryer
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. Walking-Ribeiro, O. Rodriguez-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. Dziezma, M. Ruiz-Altisent (Spain)
80  10029  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)

Tuesday, June 15 – 10:15 to 12:00

56  Section VI  Food Processing (IV)

Time  Paper #  Moderator: Michael Ngadi (Canada)
Room: 2104AB
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  Modelling 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. Oso, J. C. Novoa, L. -F. Gutiérrez (Canada)
11:40  101343  Nutritional quality and lipid oxidation of plantain chips from small scale producers in Cameroon: Correlation with frying procedures
G. Kanisi, E. Fokou, J. Mekoue et al. (Cameroon/France)

Tuesday, June 15 – 10:15 to 12:00

57  Section VI  Food Properties (I)

Time  Paper #  Moderator: Cristina Ratti (Canada)
Room: 2105
10:15  Session Opening
10:20  100242  Thermo-physical and textural properties of meat and carrot agglutinate particles fabricated for biological validation studies
H. F. Hassan, H. S. Ramaswamy (Canada)

Tuesday, June 15 – 10:15 to 12:00

58  Section VI  Nutraceutical and Functional Foods – POSTERS

Posters: 10:40 - 12:00

Tuesday, June 15 – 10:40 to 12:00

10:40  100482  Physico-chemical characteristics of wheat distiller’s grains with solubles
M. R. Mosqueda, L. G. Tabi (Canada)
11:00  100491  Quality assessment of microwave pasteurized in-shell eggs
S. 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)
11:40  100614  Microwave assisted drying of flax straw and fibre at controlled temperatures
G. R. Nair, K. Eggie, Y. Gariépy et al. (Canada)
11:50  100819  Optimization of microwave assisted extraction of antioxidants from potato peel
A. Singh, R. D. Godoy-Silva, L. -F. Gutiérrez (Colombia)
12:00  100828  Agave juice as an agent for probiotic encapsulation by spray drying
C. Cortés-Arminio, A. Lópe-Malo, E. Palou et al. (Mexico)
12:10  101120  Influence of conjugated linoleic acid (CLA) supplementation on probiotic bacteria viability and sensory properties of stired yogurt
M. R. Barón, R. D. Godoy-Silva, L. -F. Gutiérrez (Colombia)
12:20  101321  Effect of process unit operation and long term storage on EGCG-enriched tea catechin stability
L. Bazinet, M. Araya-Farias, A. Doyen et al. (Canada)
12:30  101108  Microencapsulation of fish oil into cross-linked whey protein matrix
R. Safari, R. Kadkhodaei, R. Valizadeh et al. (Iran)

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  100445  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. Tabi (Canada)
14:20  100540  Reducing fossil energy consumption of a belt dryer by using biogas waste heat
M. Böhmer, 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)
15:20  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
LIST OF ABSTRACTS BY PARTICIPATING GROUP

Tuesday, June 15 – 15:35 to 17:20

86 Section VI
Drying and Dehydration (II)

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 added with Brazil nut – a high antioxidant delicacy
R. Khr, Z. Pan, G. G. Atungulu et al. (USA/Egypt/China)

14:20 101536 Sensory evaluation of standard hard cheese minas with Brazil nut – a high antioxidant delicacy
C. Perea, 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)

15:20 101231 Effects of microwave drying and cooking on the quality of red lentil
A. Opoku, L. Tabil, V. Meda et al. (Canada)

15:40 100280 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. Alder (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 16 – 8:15 to 10:00

100 Section VI
Post Harvest and Fresh Produce (I)

8:15 100513 Poster # Paper # Moderator: Clément Vigneault (Canada)
Room: 2100D

8:20 101237 Effects of roasting temperatures and storage on the quality of red lentil
A. Opoku, L. Tabil (Canada)

8:40 100603 The shelf life of dairy products derived from red lentil
M. Keshavarz, M. Ghahremanifard, A. Shokri et al. (Iran)

9:00 100826 Use of hyperspectral imaging to improve the safety of food
X. Zhang, R. He, W. Zhang et al. (China)

9:20 100836 Fast adulterant quantification in Chinese yam powder using visible, near and mid-infrared spectroscopy
D. Wu, P. Nie, Y. Shao et al. (China)

9:40 100846 Fast detection of crude protein content in fish feeds based on infrared transmission spectroscopy and chemometrics
F. Zhu, P. Nie, Y. He (China)

10:00 100856 Fast detection of crude protein content in fish feeds based on infrared transmission spectroscopy and chemometrics
F. Zhu, P. Nie, Y. He (China)

10:20 101447 Use of hyperspectral imaging to improve the safety of food
A. Lefcourt (United States)

10:40 101174 Grade classification and protein content determination in matcha based on Vis/NIR
X. Zhang, R. He, W. Zhang et al. (China)

11:00 100808 Quantitative assessment of maple syrup properties by means of fluorescence spectroscopy
A. Clément, B. Panneton, L. Lagacé (Canada)

11:20 100836 Fast adulterant quantification in Chinese yam powder using visible, near and mid-infrared spectroscopy
D. Wu, P. Nie, Y. Shao et al. (China)

11:40 100846 Fast detection of crude protein content in fish feeds based on infrared transmission spectroscopy and chemometrics
F. Zhu, P. Nie, Y. He (China)
<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>101323</td>
<td>Effect of low anode/cathode voltage difference application on redox potential modulation during milk electroderection and storage</td>
<td>L. Bazinet, A. Schreyer, J. Lessard (Canada)</td>
</tr>
<tr>
<td>10:20</td>
<td>101216</td>
<td>Sustainability of rice processing in rural sub-Saharan Africa</td>
<td>M. Bakati, M. Ngadi, R. Kok et al. (Canada)</td>
</tr>
<tr>
<td>10:40</td>
<td>101324</td>
<td>Large scale bioseparation of an antihypertensive peptide from alfalfa white protein hydrolysate by electrodialysis with ultrafiltration membrane</td>
<td>L. Firdaous, P. Dhuister, J. Amiot et al. (Canada/France)</td>
</tr>
<tr>
<td>11:00</td>
<td></td>
<td>Winery design criteria for the production of valuable wine (DOC)</td>
<td>A. Guzman, A. Marucci, B. Pagniolo (Italy)</td>
</tr>
<tr>
<td>11:20</td>
<td>100852</td>
<td>Influence of polyglycerol esters of fatty acid on in vitro digestibility of soybean oil-in-water by pancreatic lipase</td>
<td>L. Yin (China)</td>
</tr>
<tr>
<td>11:20</td>
<td>101219</td>
<td>Application of response surface methodology to the optimisation of in vitro enzymatic digestion of soy protein isolate of high hydrostatic pressure processing</td>
<td>S. Dan, L. Shu-Jun, H.M. Chan et al. (China/Canada)</td>
</tr>
<tr>
<td>11:40</td>
<td>100940</td>
<td>Process optimization of water jet extraction of pomegranate arils using response surface methodology</td>
<td>M.R. Minian, J. Khazaeei (Iran)</td>
</tr>
<tr>
<td>11:40</td>
<td>101125</td>
<td>Factors influencing formation and stability of orange-flavoured beverage emulsion</td>
<td>S.V. Baygi, R. Kaddouchaee (Iran)</td>
</tr>
</tbody>
</table>

**Wednesday, June 16 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>129</td>
<td>Microbiological Inactivation</td>
<td>Moderator: Tatiana Koutchina (Canada)</td>
</tr>
<tr>
<td>13:40</td>
<td>100411</td>
<td>Role of infrared thermal imaging in stored products protection</td>
<td>V. Rajagopal, D. S. Jayas, N. D.G. White (Canada)</td>
</tr>
<tr>
<td>14:00</td>
<td>101446</td>
<td>The successive predictions algorithm for variable selection in alien invasive weeds classification based on Vis/WNIR</td>
<td>P. Nie, J. Yu, Y. Zhao et al. (China)</td>
</tr>
<tr>
<td>14:20</td>
<td>100647</td>
<td>Application of infrared spectromicroscopy to characterize and determine the spatial distribution of lignocellulosic components in agricultural straw pellets</td>
<td>P. K. Adapa, C. Karunakaran, L. G. Tabl et al. (Canada)</td>
</tr>
<tr>
<td>15:00</td>
<td>101747</td>
<td>Melon soluble solids content measurement using Vis/NIR diffuse reflectance spectroscopy</td>
<td>H. S. Shin, S. R. Suh, K. H. Lee et al. (Republic Of Korea)</td>
</tr>
</tbody>
</table>

**Wednesday, June 16 – 13:35 to 15:20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:35</td>
<td>130</td>
<td>Spectroscopy and Image Analysis (IV)</td>
<td>Moderator: Jochen Hemming (Netherlands)</td>
</tr>
<tr>
<td>13:40</td>
<td>101199</td>
<td>Fluid-dynamic properties and pressure loss of black beans in a packed bed</td>
<td>R.A. De Oliveira, K.J. Park, A.M. Vivas et al. (Brazil)</td>
</tr>
<tr>
<td>14:00</td>
<td>101167</td>
<td>Methods for the assessment of candy gum elasticity</td>
<td>G. Cisma, V. Bizcò, T. Kaszab et al. (Hungary)</td>
</tr>
<tr>
<td>14:20</td>
<td>101475</td>
<td>Color texture feature analysis for estimation of melon internal quality</td>
<td>S.R. Suh, K.H. Lee, S.H. Yu et al. (Republic Of Korea)</td>
</tr>
<tr>
<td>15:00</td>
<td>101553</td>
<td>Moisture adsorption isotherms of castor beans</td>
<td>A.L.D. Goneli, P.C. Correà, G.H.H. Oliveira et al. (Brazil)</td>
</tr>
<tr>
<td>15:20</td>
<td>101642</td>
<td>Rheological properties of processed liquid egg white products</td>
<td>C. Németh, R. Juhász, L. Friedrich et al. (Hungary)</td>
</tr>
<tr>
<td>16:00</td>
<td>100506</td>
<td>Physical properties of cumin (Cinnamomum cuminum) and caraway (Carum carvi) seeds</td>
<td>D. Zare, A. Bakhshi-pour, A. Zomorodian (Iran)</td>
</tr>
<tr>
<td>Time</td>
<td>Paper #</td>
<td>Moderator</td>
<td>Location</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>--------------------</td>
<td>---------------------------------</td>
</tr>
</tbody>
</table>
| 11:40  | 100753  | Antonio Vega-Gálvez, Margarita Miranda, Gipsy Tabló-Munizaga, Mario Pérez-Won (Chili) | Section VII and WCCA | 100479
| 12:00  | 100804  | L. Laudari, G. Modica, N. Sadeghi, S. M. Nassiri (Iran) | Section VII and WCCA | 100804
| 12:35  | 100836  | R. Masuda, K. Nakayama, K. Nomura (Japan) | Section VII and WCCA | 100836
| 13:00  | 100906  | Design, fabrication and evaluation of a mobile robot for greenhouse spraying | Section VII and WCCA | 100906
| 13:35  | 100977  | Test and evaluation of two process control strategies for adapting direct injection pesticide application to small scale farms | Section VII and WCCA | 100977
| 14:00  | 101053  | Hyperspectral character analysis of rice leaves infested by brown plant-hopper (Nilaparvata lugens) | Section VII and WCCA | 101053
| 14:30  | 101122  | Detection of fusarium damaged kernels in wheat using hyperspectral imaging | Section VII and WCCA | 101122
| 14:40  | 101157  | Design of an autonomous spraying robot for greenhouse | Section VII and WCCA | 101157
| 15:15  | 101235  | Modelling and Simulation – POSTERS | Section VII and WCCA | 101235
| 15:40  | 101304  | Production process evaluation of wastewater-irrigated plant biomass through life cycle assessment | Section VII and WCCA | 101304
| 16:10  | 101373  | A hybrid wavelet transform-based agricultural de-noising algorithm | Section VII and WCCA | 101373
| 16:40  | 101442  | A unified pest scouting for area-wide IPM | Section VII and WCCA | 101442
| 17:10  | 101511  | Development of a remote control system for autonomous agricultural vehicles | Section VII and WCCA | 101511
| 17:40  | 101566  | Automatic on-line depth control of seeding units using a non-contacting ultrasonic sensor | Section VII and WCCA | 101566
| 18:10  | 101635  | Wireless sensor system for process monitoring of tree seed storage | Section VII and WCCA | 101635
| 18:40  | 101704  | 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 | Section VII and WCCA | 101704

**SECTION VII Information Systems and 8th World Congress on Computers in Agriculture**

**Monday, June 14 – 10:15 to 12:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Location</th>
</tr>
</thead>
</table>
| 10:15  | 100364  | Image analysis, 3D geometry modeling and inverse FEA in investigating properties of agri-food and forest products | Section VII and WCCA | 100364
| 10:40  | 100753  | Hyperspectral analysis of rice leaves infested by brown plant-hopper (Nilaparvata lugens) | Section VII and WCCA | 100753
| 11:00  | 101012  | A hybrid wavelet transform-based agricultural de-noising algorithm | Section VII and WCCA | 101012
| 11:30  | 101278  | Design of a robot navigation | Section VII and WCCA | 101278
| 11:40  | 100933  | Automatic grading of anthurium cut flowers using 3D computer vision | Section VII and WCCA | 100933
| 12:00  | 100804  | L. Laudari, G. Modica, N. Sadeghi, S. M. Nassiri (Iran) | Section VII and WCCA | 100804
| 12:30  | 101053  | Hyperspectral analysis of rice leaves infested by brown plant-hopper (Nilaparvata lugens) | Section VII and WCCA | 101053
| 12:40  | 101122  | Detection of fusarium damaged kernels in wheat using hyperspectral imaging | Section VII and WCCA | 101122
| 13:10  | 101235  | Test and evaluation of two process control strategies for adapting direct injection pesticide application to small scale farms | Section VII and WCCA | 101235
| 13:40  | 100984  | Design of an autonomous spraying robot for greenhouse | Section VII and WCCA | 100984
| 14:00  | 101157  | Vision-based weed identification with farm robots | Section VII and WCCA | 101157
| 14:30  | 101304  | A hybrid wavelet transform-based agricultural de-noising algorithm | Section VII and WCCA | 101304
| 14:40  | 101373  | Design of an autonomous spraying robot for greenhouse | Section VII and WCCA | 101373
| 15:10  | 101511  | Development of a remote control system for autonomous agricultural vehicles | Section VII and WCCA | 101511
| 15:20  | 101566  | Automatic on-line depth control of seeding units using a non-contacting ultrasonic sensor | Section VII and WCCA | 101566
| 15:30  | 101635  | Wireless sensor system for process monitoring of tree seed storage | Section VII and WCCA | 101635
| 15:40  | 101704  | 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 | Section VII and WCCA | 101704

**Tuesday, June 15 – 10:15 to 12:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Location</th>
</tr>
</thead>
</table>
| 10:15  | 100633  | G. Cascone, C. Arcidiacono, S.M.C. Porto (Italy) | Section VII and WCCA | 100633
| 10:40  | 100933  | Automatic grading of anthurium cut flowers using 3D computer vision | Section VII and WCCA | 100933
| 11:10  | 101012  | Design of an autonomous spraying robot for greenhouse | Section VII and WCCA | 101012
| 11:40  | 101278  | Test and evaluation of two process control strategies for adapting direct injection pesticide application to small scale farms | Section VII and WCCA | 101278
| 12:10  | 101511  | Development of a remote control system for autonomous agricultural vehicles | Section VII and WCCA | 101511
| 12:40  | 101566  | Automatic on-line depth control of seeding units using a non-contacting ultrasonic sensor | Section VII and WCCA | 101566
| 13:10  | 101635  | Wireless sensor system for process monitoring of tree seed storage | Section VII and WCCA | 101635
| 13:40  | 101704  | 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 | Section VII and WCCA | 101704

**Tuesday, June 15 – 10:15 to 12:00**

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Moderator</th>
<th>Location</th>
</tr>
</thead>
</table>
| 10:15  | 100633  | G. Cascone, C. Arcidiacono, S.M.C. Porto (Italy) | Section VII and WCCA | 100633
| 10:40  | 100933  | Automatic grading of anthurium cut flowers using 3D computer vision | Section VII and WCCA | 100933
| 11:10  | 101012  | Design of an autonomous spraying robot for greenhouse | Section VII and WCCA | 101012
| 11:40  | 101278  | Test and evaluation of two process control strategies for adapting direct injection pesticide application to small scale farms | Section VII and WCCA | 101278
| 12:10  | 101511  | Development of a remote control system for autonomous agricultural vehicles | Section VII and WCCA | 101511
| 12:40  | 101566  | Automatic on-line depth control of seeding units using a non-contacting ultrasonic sensor | Section VII and WCCA | 101566
| 13:10  | 101635  | Wireless sensor system for process monitoring of tree seed storage | Section VII and WCCA | 101635
| 13:40  | 101704  | 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 | Section VII and WCCA | 101704
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. Navás-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
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. Webensohn, R. Nikkiši 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/USA)
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. Ahmed, P.H. Robinson, P. Chilibroste (United States)

Tuesday, June 15 – 15:35 to 17:20
89 Section VII and WCCA Wireless Technology (I)
Time Paper # Moderator: Margarita Ruiz Altisent (Spain) Room: 2101
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)

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. Nikkiši, E. Naah, 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
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. Bilog, 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. Khazaie, 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. Kozlowski 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
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 DiaDigData: A tool for generation of fuzzy inference system S.M.F.S. Massruha, 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)
<table>
<thead>
<tr>
<th>Time</th>
<th>Paper #</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:40</td>
<td>101457</td>
<td>Structural plant modelling based on real 3D structural parameters, resulting simulation system and rule-based language XL</td>
<td>R. He, J. Hu, Y. He et al. (China)</td>
</tr>
<tr>
<td>15:00</td>
<td>100824</td>
<td>A numerical integrated model of composting processes using finite elements methods</td>
<td>P. Courvoisier, G. Clark (Canada)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wednesday, June 16 – 13:35 to 15:20</td>
<td></td>
</tr>
<tr>
<td>133</td>
<td>Section VII and WCCA</td>
<td>Wireless Technology (II)</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Paper #</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>13:35</td>
<td></td>
<td>Session Opening</td>
<td></td>
</tr>
<tr>
<td>13:40</td>
<td>101159</td>
<td>Refrigerated fruit storage monitoring using RFID and WSN</td>
<td>L. Ruiz-Garcia, J. Garcia-Hierro, P. Barreiro et al. (Spain)</td>
</tr>
<tr>
<td>14:00</td>
<td>101270</td>
<td>Three-tier wireless sensor network for environmental monitoring</td>
<td>N. Zhang, W. Han (United States)</td>
</tr>
<tr>
<td>14:20</td>
<td>100477</td>
<td>Development of RFID temperature tracking systems for combat feeding logistics</td>
<td>C. Amador, J.-P. Emond (United States)</td>
</tr>
<tr>
<td>14:40</td>
<td>100679</td>
<td>Research on WSN design and formation for drought monitoring in a tea plantation</td>
<td>W. Wang, D. Sun (China)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Abstract only</td>
<td></td>
</tr>
<tr>
<td>100563</td>
<td></td>
<td>Development of an automatic control management system for a greenhouse</td>
<td>Yutaka Sasaki, Noe Velazquez Lopez, Kazuhiro Nakano (Japan)</td>
</tr>
</tbody>
</table>