

# CSBE/ASABE North Central Inter-Sectional Conference

## Technical Session Program

Parktown Hotel  
Saskatoon, SK  
October 5-7, 2006

Friday, 8:30 - 11:50 AM

Session 1: Agricultural Systems - *Maple*

Session 2: Bioprocessing I - *Birch*

Session 3: Natural Resources - *Poplar*

Saturday, 8:30 - 10:30 AM

Session 4: Ag. Systems and Processing - *Maple*

Session 5: Bioprocessing II - *Birch*

Session 6: Bioprocessing III - *Poplar*

### *Session 1* *Agricultural Systems I* (Friday, 8:30 – 11:50 AM)

Room: *Maple*

Chair: **Lal Kushwaha/Huiqing Guo**, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

- 8:30 **The implementation of environmental chamber systems to monitor physiological responses of poultry: a review** MBSK 06-100  
K.G. Bergemann, T. G. Crowe, H. L. Classen, P. J. Shand and E. M. Barber, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 8:50 **Soil cone index estimation for different tillage systems** MBSK 06-101  
A. Kumar, Y. Chen and S. Rahman, Department of Biosystems Engineering, University of Manitoba
- 9:10 **Dynamic Properties of Soil and a Smooth Surface Roller Interaction** MBSK 06-102  
J. Liu and R. L. Kushwaha, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:30 **Design and construction of the new circular soil bin in the Department of Agricultural and Bioresource Engineering at the University of Saskatchewan** MBSK 06-103  
L. Roth, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:50 **An Integrated Barn-Biofilter-Greenhouse System** MBSK 06-104  
K. Mahmood and D. D. Mann, Department of Biosystems Engineering, University of Manitoba
- 10:10-10:30 **Break**
- 10:30 **Evaluation of Airflow through a Horizontal-Airflow Biofilter with a Non-Pressurized Headspace** MBSK 06-105  
D. D. Mann, K. N. Wilson and C. S. Ima, Department of Biosystems Engineering, University of Manitoba
- 10:50 **Investigation of Use of Nanoparticles for Reducing Gas Emissions from Swine Manure** MBSK 06-106  
D. A. Asis and B. Z. Predicala, Prairie Swine Centre Inc. Saskatoon SK.

- 11:10 **Modeling Liquid System as a part of Integrated Decision Support System for manure management** MBSK 06-107  
S. Karmakar, M. Nketia, C. Laguë, J. Agnew and H. Landry, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 11:30 **Calibration and Correction for Non-Uniform Pixel Sensitivity in Digital NIR Imaging** MBSK 06-108  
W. Wang, J. Morrison and J. Paliwal, Department of Biosystems Engineering, University of Manitoba

*Session 2*  
***Bioprocessing I***  
(Friday, 8:30 – 11:50 AM)

Room: ***Birch***

Chair: **Lope Tabil/Satya Panigrahi**, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

- 8:30 **Effects of cultivation, transportation and distribution methods on the life cycle inventory (LCI) of fresh tomato** MBSK 06-200  
P. Roy, D. Nei, H. Okadome, N. Nakamura and T. Shiina, National Food Research Institute, Kannondai, Japan
- 8:50 **Determination of Specific Heat, Thermal Conductivity and Thermal Diffusivity of the Rhizome of *Podophyllum peltatum* for Drying and Ethanol Extraction** MBSK 06-201  
M. Izadifar and O. D. Baik, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:10 **The effect of superheated steam temperature, velocity and processing time on selected oat groat post-processing properties** MBSK 06-202  
D. Zmidzinska, S. Cenkowski and S. Arntfield, Department of Biosystems Engineering, University of Manitoba
- 9:30 **Effect of product size and oil temperature on heat transfer coefficient during frying** MBSK 06-203  
A. Farinu and O. D. Baik, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:50 **Artificial taste sensors: An overview** MBSK 06-204  
P. Mohapatra and S. Panigrahi, Department of Agricultural and Biosystems Engineering, North Dakota State University
- 10:10-10:30 **Break**
- 10:30 **Compression and Relaxation Properties of Timothy Hay** MBSK 06-205  
S. Talebi, L. G. Tabil, A. Opoku and M. D. Shaw, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 10:50 **Overview of Retting of Flax for Different Applications** MBSK 06-206  
A. Rana, L. G. Tabil, P. Chang and S. Panigrahi, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 11:10 **Identification of Salmonella Using TF-module Electronic Nose System** MBSK 06-207  
S. Woznica, S. Panigrahi, C. Logue, J. Sherwood, C. Doetkott and M. Marchello, Department of Agricultural and Biosystems Engineering, North Dakota State University
- 11:30 **Convective heat and mass transfer analogy during frying** MBSK 06-208  
A. Farinu and O. D. Baik, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

**Session 3**  
**Natural Resources**  
(Friday, 8:30 – 11:30 AM)

Room: **Poplar**

Chair: **Terry Fonstad/Charles Maulé**, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

- 8:30 **Physical and Hydrologic Properties of Feedlot Manure** MBSK 06-300  
J. Henderson, T. de Rosario and C. Maulé, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 8:50 **Movement of Cations Following the Decommissioning of an Earthen Manure Storage** MBSK 06-301  
C. D. Rinas and T. A. Fonstad, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:10 **The Effect of DEM Resolution on AnnAGNPS Output Studies** MBSK 06-302  
M. Y. Khan and D. D. Steele, Department of Agricultural and Biosystems Engineering, North Dakota State University
- 9:30 **Livestock Mortalities Burial Leachate Chemistry: The First Nine Months** MBSK 06-303  
D. Pratt and T. A. Fonstad, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:50 **Overview of Surface Hydrological Conditions of Saskatchewan Cattle Feedlots** MBSK 06-304  
I. Herzog, T. A. Fonstad, and C. Maulé, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 10:10-10:30 **Break**
- 10:30 **Greenhouse Gas and Odour Emissions from Land Application of Manure: A Review of Measurement Methods** MBSK 06-305  
J. Agnew, P. Loran and C. Laguë, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 10:50 **Evaluation of Air Dispersion Models for the Agricultural Odour Dispersion: Using Swine Odour Plume Measurement data from Rama, Saskatoon** MBSK 06-306  
Y. Xing, H. Guo and J. Feddes, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 11:10 **Use of Trained Odour Assessors to Monitor Odour Intensity, Duration and Offensiveness Downwind of Manure Application Sites** MBSK 06-307  
J. Agnew, P. Loran, S. Karmakar, C. Reid and C. Laguë, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 11:30 **Diurnal variation of odour emissions and air quality of three different rooms under hot weather condition** MBSK 06-308  
Y. Wang, D. Burnett and H. Guo, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

*Session 4*  
*Agricultural Systems II*  
(Saturday, 8:30 – 10:10 AM)

Room: *Maple*

Chair: **Trever Crowe**, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

- 8:30 **Development of a low-disturbance and low-cost fertilizer banding opener** MBSK 06-109  
F. Chen, Y. Chen and J. Wylde, Department of Biosystems Engineering, University of Manitoba
- 8:50 **Optimal Management of Solar Powered Mini-pivots for High Value Crops** MBSK 06-110  
E. Derdall, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:10 **Development of a tractor driving simulator** MBSK 06-111  
D. Karimi and D. D. Mann, Department of Biosystems Engineering, University of Manitoba
- 9:30 **Mental Workload Measurement of Agricultural Sprayer Operators** MBSK 06-112  
A. K. Dey and D. D. Mann, Department of Biosystems Engineering, University of Manitoba
- 9:50 **A study of tractor yaw dynamics for a tractor driving simulator** MBSK 06-113  
D. Karimi and D. D. Mann, Department of Biosystems Engineering, University of Manitoba

*Session 5*  
*Bioprocessing II*  
(Saturday, 8:30 – 10:30 AM)

Room: *Birch*

Chair: **Venkatesh Meda**, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

- 8:30 **Municipal Solid Waste - A Review of Classification System** MBSK 06-209  
P. Adapa, L. G. Tabil and G. Schoenau, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 8:50 **Analysis of Compression as a Disinfestation Technique for the Hessian Fly (*Mayetiola destructor* (Say)) in Timothy Hay: Second Field Test Results** MBSK 06-210  
S. Talebi, L. G. Tabil, A. Opoku, M. D. Shaw and W. J. Crerar, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:10 **Alterative Usage of Date Pit Flour in Polymer Composites** MBSK 06-211  
A. Ghazanfari, J. Fung and S. Panigrahi, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:30 **Comparison between Moulding Techniques of Recycled Plastic Based Biocomposite** MBSK 06-212  
K. Barghout, S. Panigrahi and J. Fung, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:50 **Wavelet transformation: a tool for pattern analysis: a review** MBSK 06-213  
L. R. Khot and S. Panigrahi, Department of Agricultural and Biosystems Engineering, North Dakota State University
- 10:10 **Thin-Layer Drying Characteristics of Beef Jerky** MBSK 06-214  
I. V. Thiagarajan, V. Meda, P. Shand and S. Panigrahi, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

*Session 6*  
***Bioprocessing III***  
(Saturday, 8:30 – 10:30 AM)

Room: **Poplar**

Chair: **Oon-Doo Baik**, Department of Agricultural and Bioresource Engineering, University of Saskatchewan

- 8:30 **Identification of salmonella contaminated beef using Fourier transform infrared spectroscopy** MBSK 06-220  
S. Panigrahi and J. K. Amamcharla, Department of Agricultural and Biosystems Engineering, North Dakota State University
- 8:50 **Crushing force, compressive and tensile strengths of timothy hay stems** MBSK 06-215  
A. Opoku, L. G. Tabil and S. Talebi, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:10 **Olfactory sensing: Overview of the biology, mechanism and applications for food safety** MBSK 06-216  
S. Sankaran and S. Panigrahi, Department of Agricultural and Biosystems Engineering, North Dakota State University
- 9:30 **Drying Characteristics of Carrot under Microwave-Vacuum Condition** MBSK 06-217  
S. Mishra, A. Rana, A. Tripathy and V. Meda, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 9:50 **Thermo-chemical conversion of flax fiber and recycled HDPE into polymer composites through injection mouldings** MBSK 06-218  
V. Shunmugavel, K. Barghout, S. Panigrahi and L. G. Tabil, Department of Agricultural and Bioresource Engineering, University of Saskatchewan
- 10:10 **Viscosity of melted flax fiber-HDPE composites for injection molding** MBSK 06-219  
X. Li, L. G. Tabil and S. Panigrahi, Department of Agricultural and Bioresource Engineering, University of Saskatchewan