

American Society of Agricultural and Biological Engineers Annual International Meeting 2013

**Kansas City, Missouri, USA
21-24 July 2013**

Volume 1 of 6

ISBN: 978-1-62748-665-1

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2013) by the American Society of Agricultural & Biological Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the American Society of Agricultural & Biological Engineers
at the address below.

American Society of Agricultural
& Biological Engineers
2950 Niles Road
St. Joseph, MI 49085

Phone: (269) 429-0300
Fax: (269) 429-3852

hq@asabe.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Volume 1

Smooth Sliding Mode Control for Trajectory Tracking of Greenhouse Spraying Mobile Robot	1
<i>Guoqin Gao, Yi Ren, Haiyan Zhou, Zhiming Fang</i>	
In-Field Performance of Hay Balers Using DGPS.....	12
<i>R. D. Grisso, G. Moxley, E. G. Webb, J. S. Cundiff, S. Sokhansanj</i>	
Parametric Study of Machinery Management Relationships on Forage Equipment.....	26
<i>R. D. Grisso, E. G. Webb, J. S. Cundiff, S. Sokhansanj</i>	
Failures of Geomembrane Liners for Agricultural Waste Storage Ponds.....	38
<i>Benjamin C. Doerge, Cherie Lafleur</i>	
Growing Bioenergy Feedstocks on Hog Effluent Spray Fields- An Economic, Environmental, and Energy Assessment.....	47
<i>Kevin R. Caffrey, Matthew B. Whitfield, Joshua L. Johnson, Matthew W. Veal, Mari S. Chinn</i>	
Insulated Wood Pier Foundation for Hoop Houses.....	57
<i>David R. Bohnhoff</i>	
Effects of Regulated Deficit Irrigation and Phosphorus Fertilizers on Yield, Water Use Efficiency and Total Soluble Solids of Tomato	76
<i>Mohamed E. Abuarab, Mohamed M. Shahien, Ahmed M. Hassan</i>	
Laboratory Evaluation of a Turn Compensation Control System for a Ground Sprayer.....	91
<i>Wesley M. Porter, Yeyin Shi, Jorge A. Rason, Randal K. Taylor, Paul A. Weckler</i>	
Comparison of a Belt and Auger Conveyance System for a Cotton Stripper Header.....	106
<i>Wesley M. Porter, John D. Wanjura, Randal K. Taylor, Michael D. Buser, Edward M. Barnes</i>	
Effects of Selected Predictors on Utah Farm Owner/Operators' Agricultural Confined Space Hazard Perceptions.....	117
<i>Michael L. Pate, Xin Dai</i>	
Measurement of Combine Losses for Corn and Soybeans in Brazil	133
<i>Marvin R. Paulsen, Francisco De Assis De Carvalho Pinto, Darly Geraldo De Sena Jr., Rodrigo Zondonadi, Solenir Ruffato, Anderson Costa, Vilmar Antonio Ragagnin, Mary-Grace C. Danao</i>	
Dynamic and Distributed Infield-Planning System for Harvesting	156
<i>Max Reinecke, Hans-Peter Grothaus, Gerhard Hembach, Stephan Scheuren, Ronny Hartanto</i>	
Sugarcane Harvesting System: A Critical Overview.....	161
<i>Shaochun Ma, Manoj Karkee, Qin Zhang</i>	
Compact Power Equipment Troubleshooting Training: Formative Assessment using Think-Aloud Pair Problem Solving.....	173
<i>Caitlin Young, Michael L. Pate</i>	
Development of Fast-Hardening Calcium Phosphate Cements using Micro/Nano Horse Bone Powders	180
<i>Jangho Kim, Ki-Taek Lim, Soo Jung Baik, Jong Hoon Chung</i>	
Development of Rapid Diagnosis Technology for Pig Disease.....	186
<i>H. J. Kim, J. T. Hong, B. K. Yoo, Giyoung Kim, S. Kim</i>	
Electricity Generation, and Organic Matters and Nutrients Removal Using Microbial Fuel Cells for Swine Wastewater of Different Pretreatment.....	192
<i>Hongjian Lin, Xiao Wu, Curtis Miller, Jun Zhu</i>	
Particle Size Measurement by Static and Dynamic Image Analysis for Processed Woody Biomass Crops	206
<i>Philippe Savoie, Guillaume Pilon, Sudhagar Mani</i>	
Field and Economic Performance of Three Tractor Models for Ploughing Operations in Sandy-Clay Soil of Nigeria.....	219
<i>A. O. Adewoyin, E. A. Ajav</i>	
The Design and Fabrication of a Rotatable Guarded Hot Box (RGHB) Capable of Static Pressure Application.....	237
<i>Andrew J. Holstein, David R. Bohnhoff</i>	
An Approach to Farm Management Information Systems Using Task-Specific, Collaborative Mobile Apps and Cloud Storage Services	258
<i>Jonathan Welte, Aaron Ault, Cyrus Bowman, Steven Ellis, Dennis Buckmaster, Daniel Ess, James Krogmeier</i>	
Ammonia and Greenhouse Gas Emissions of a Modern U.S. Swine Breeding-Gestation-Farrowing Facility	282
<i>John P. Stinn, Hongwei Xin, Timothy A. Shepherd, Hong Li, Robert T. Burns</i>	
Demonstration Scale Roll Press Compaction of Corn Stover and Corn Cobs	290
<i>Nalladurai Kaliyan, R. Vance Morey, David R. Schmidt</i>	
Life Cycle Assessment of Corn Stover Torrefaction Plant Integrated with a Corn Ethanol Plant and a Coal Fired Power Plant	298
<i>Nalladurai Kaliyan, R. Vance Morey, Douglas G. Tiffany, Won F. Lee</i>	
Comparison of Application Strategies for Fixed-media Treatment of Turkey Processing Wastewater	311
<i>Chen Wang, Karen Mancl, Olli H. Tuovinen</i>	
Investigation of Oil Extraction from Non-food Sunflower Seeds and Meats for Future Jet Fuel Production	318
<i>Xianhui Zhao, Lin Wei, James Julson, Wangda Qu, Chunkai Shi</i>	
Cold Temperature Impacts on Treatment of Meat Processing Wastewater	332
<i>Karen Mancl, Rashmi Gaur, Olli H. Tuovinen</i>	

Finite Element Modeling of Phosphorus Leaching Through Floodplain Soils Dominated by Preferential Flow Pathways	340
<i>R. P. Freiburger, D. M. Heeren, G. A. Fox</i>	
Using Tall Fescue to Remove Nutrients from Renovated Turkey Processing Wastewater	349
<i>Jie Xu, Karen M. Mancl, Olli H. Tuovinen</i>	
Evaluation of a Commercial Low Impact Development and an Adjacent Traditional Development in Raleigh, NC for Hydrology and Water Quality	357
<i>Ryan J. Winston, Corinne E. Wilson, William F. Hunt</i>	
Mathematical Modeling and Simulation of an Antiblocking Mechanism for No-till Maize Planter	366
<i>N. N Gao, D. X. Zhang, L. Yang</i>	
Effects of Long-term Fertility Management on the Splash Erodibility of Ferruginous Soils	374
<i>Gregory C. Obiechefu</i>	
Experimental Study on Torrefaction of Corn Stover, Switchgrass, and Prairie Grass	395
<i>Lin Wei, Wangda Qu, James Julson, Chunkai Shi, Xianhui Zhao</i>	
Study on Grain Distribution in a Cross-flow Grain Separation Chamber Based on the Discrete Element Method	404
<i>Kenan Ni, Xiaoqiang Du, Shaozhong Chen, Jianneng Chen, Yun Zhao</i>	
Numerical Simulation and Experiment of Gas-solid Two-phase Flow in a Cross-flow Grain Cleaning Device	412
<i>Xiaoqiang Du, Kenan Ni, Jianneng Chen, Chuanyu Wu, Yun Zhao</i>	
Parameter-Guided Optimization Algorithm and Its Application in Designing a Rice Transplanting Mechanism	419
<i>Yun Zhao, Xiaoqiang Du</i>	
Design & Simulation of Automatic Control and Operation of Agricultural Wide-Span Implement Carrier (WSIC)	427
<i>Ahmad Mohsenimahesh, Claude Laguë, Chengming Luo</i>	
Field Evaluation of LED and CFL Lights in Poultry Houses	437
<i>John W. Worley, Brian Fairchild, Michael Czarick</i>	
An Imaging System for Monitoring Livestock Growth Based on Optical Vision Technology	444
<i>Jingjing Chen, Yankun Peng, Fang Tian, Akira Sasao</i>	
A Portable System for Prediction of Pork Freshness Parameters Using Multispectral Imaging Technology	450
<i>Cuiling Li, Yankun Peng, Xiuying Tang, Akira Sasao</i>	
Influence of Distance between Optical Fiber Probe and Sample on Pork Quality Detection Results	458
<i>Yuanyuan Liu, Yankun Peng, Sagar Dhakal, Leilei Zhang, Tong Zhou</i>	
Nondestructive Detection of Pesticide Residue Concentration in Apple by Raman Spectral Technology	464
<i>Sagar Dhakal, Yongyu Li, Yankun Peng, Kuanglin Chao, Jianwei Qin</i>	
Spoilage Detection of Chilled Meat during Shelf Life by using Hyperspectral Imaging Technique	472
<i>Leilei Zhang, Yankun Peng, Sagar Dhakal, Feifei Tao, Yulin Song, Songwei Zhao</i>	
A Self-adaptive and Precise Oxygen Supplementary Equipment for Aquaculture with SMS Supported	480
<i>Qingzhen Zhou, Haihui Zhang</i>	
Investigation of the Plant Cell Wall's Molecular Structure Models Using the Finite Element Modeling	488
<i>Hojae Yi, M. Shafayet Zamil, Virendra M. Puri</i>	
Utilization of Alfalfa Through Integrated Green Biorefinery: Effects of Fractionation Processes on Green Juice Extraction	494
<i>Shuangning Xiu, Abolghasem Shahbazi, Lijun Wang</i>	
Narrow Grass Hedge Effects on Nutrient Transport Following Swine Slurry Application	500
<i>J. E. Gilley, S. L. Bartelt-Hunt, S. J. Lamb, X. Li, D. B. Marx, D. D. Snow, D. B. Parker, B. L. Woodbury</i>	
The Evolution of Dielectric Properties Measurement Techniques for Agricultural Products	515
<i>Stuart O. Nelson, Samir Trabelsi</i>	
Heat and Moisture Production Rates of a Modern U.S. Swine Breeding-Gestation-Farrowing Facility	522
<i>John P. Stinn, Hongwei Xin</i>	
Comparison of Pretreatment Methods for Wheat Straw Densification by Life Cycle Assessment Study	530
<i>Donghui Lu, Lope Tabil, Decheng Wang, Xue Li, Edmund Mupondwa</i>	
Wireless Control Network for Variable Environment Control in Greenhouse	545
<i>Sin-Woo Kang, Sun-Ok Chung, Seung-Oh Hur</i>	
Accelerating Decomposition Rate of Fresh Faecal Materials from a Farrow-to-Finish Swine Farm with Black Soldier Fly Larvae (<i>Hermetia illucens</i>)	555
<i>Adewunmi Taiwo, Evelyn Ama Otoo</i>	
Automatic Guidance and Operation of Agricultural Wide-span Implement Carrier (WSIC): Kinematic Modelling and Simulation	572
<i>Chengming Luo, Ahmad Mohsenimahesh, Claude Laguë</i>	
Dielectric Properties of Grain and Seed and Their Usefulness in Sensing Physical Properties	586
<i>Stuart O. Nelson, Samir Trabelsi</i>	
The Optimum Operation Conditions of a GABA Tea Powder Extrudate	596
<i>Jinchyau Peng, Hsi-Kai Tang, Fu-Liang Hong</i>	
Effects of Fermentation Time and Seasons on the γ-aminobutyric Acid and Glutamic Acid Contents of TTES-13 and Oolong GABA Tea	614
<i>Ming-Yuan Lee, Jinchyau Peng</i>	
The Optimum Operation Conditions of a Pumpkin Powder Extrudate	620
<i>Fu-Liang Hong, Jinchyau Peng, Wai-Bun Lui</i>	
Simulation Analysis on Air Current Field of Positive-pressure for Metering Device of Maize Precision Planter	631
<i>Song Shi, Dongxing Zhang, Tao Cui</i>	
Determination of Working Pressure Range in a Centralized Pneumatic Metering Device for Maize	638
<i>Bing Qi, Dongxing Zhang, Abdalla N. Osman</i>	

Effect of Condensed Distillers Solubles and Drying Methods on Selected Physico-chemical Characteristics of Laboratory-prepared Wheat Distillers Dried Grain with Solubles	643
<i>Maria Rosario P. Mosqueda, Lope G. Tabil</i>	
Ventilation Rate Measurements and Gas Emissions from a Naturally Ventilated Barn for Dairy Cows.....	656
<i>Ngwa Martin Ngwabie, Andrew Vanderzaag, Claudia Wagner-Riddle</i>	
A Bench-scale Study of Biomass Production by <i>Chlorella Pyrenoidosa</i> Cultivated in Anaerobic Poultry Waste Effluent	666
<i>Yu Wu, Wei Cao, Mengzi Wang, Baoming Li, Yuanhui Zhang</i>	
Load Characteristics of 30 and 75 kW Agricultural Tractors during Field Operations.....	676
<i>Myong-Jin Ryu, Sin-Woo Kang, Sun-Ok Chung, Yong-Joo Kim, Dae-Hyun Lee, Chang-Hyun Choi</i>	
A Sorting Method for Maize Haploid Based on Computer Vision	686
<i>Zhanyuna Wu, Junxiong Zhang, Peng Song, Wei Li, Yubin Lan</i>	
Ammonia Recovery from Dairy Manure.....	692
<i>Anayo T. Ukwuani, Wendong Tao, Jianqiu Han</i>	
Impacts of Gravel Mulch on Sediment Yield Process under Simulated Rainfall Conditions.....	698
<i>Cuiping Yuan, Qinghong Yan, Yuequn Dong</i>	
Determination of Soil Nitrogen and Organic Carbon from Near-infrared Reflectance with Variable Selection	707
<i>Shengyao Jia, Xianglong Yang, Jianming Zhang, Guang Li</i>	
Technology System of Paddy Mechanized Farming in Guangdong	715
<i>Huang Huang, Minli Yang, Chun Ye, Lina Zhang, Qiang Cai</i>	
High-pressure Inactivation Kinetics of <i>Staphylococcus Aureus</i> in Chinese Soybean Paste	721
<i>Minsheng Zhou, Guangming Su, Yong Yu, Jinsong He, Songming Zhu</i>	
Application of VIS-SW-NIR Spectroscopy for Detecting Adulteration in Fresh Minced Beef.....	728
<i>Xiaoyu Tian, Yang Xu, Yankun Peng, Xiuying Tang, Shibang Ma</i>	
Developing Crop Coefficients and Pan Coefficient for Greenhouse-grown Tomato Under Drip Irrigation.....	738
<i>Weixia Zhao, Jiusheng Li, Zhen Wang, Yanfeng Li</i>	
Nitrogen Dynamics in Soil and Maize Yield As Affected by Drip Fertigation Splits and Rates in Semi-humid Region	747
<i>Yang Liu, Jiusheng Li, Yanfeng Li</i>	
Effect of Macro Shape Tillage Tool Geometry on Draught Force and Soil Translocation	758
<i>Seth I. Manuwa</i>	
Air Impingement Drying Characteristics and Model of Chinese Jujube.....	772
<i>Zheng Lou, Hongwei Xiao, Zhenjiang Gao</i>	
Using Eddy Covariance, Soil Water Balance, and Photosynthetically Active Radiation Methods for Corn Evapotranspiration Measurements in the Red River Valley.....	781
<i>Kelsey Kolars, Xinhua Jia, Dean D. Steele, Thomas F. Scherer, Thomas M. Desutter</i>	
System Integration Design of Intra-Row Weeding Robot	792
<i>Chunlong Zhang, Junxiong Zhang, Xiaolong Huang, Nan Li, Ziwen Chen, Wei Li</i>	
Hermetic Storage Systems for Maize Stored on Subsistence Farms	802
<i>C. J. Bern, A. Yakubu, T. J. Brumm, K. A. Rosentrater</i>	
Authentication of Milk Powder using Raman Scattering Spectroscopy and Imaging	810
<i>Jianwei Qin, Kuanglin Chao, Yu-Che Cheng, Moon S. Kim</i>	
Parametric Study of Hand-held Mechanical Bloom Thinner in Cherry Orchards	820
<i>Meng Wang, Qin Zhang, Karen M. Lewis</i>	
The Effect of Shaking Frequency on Fruit Motion Patterns and Damage Rate during Cherry Detaching Process	828
<i>Jianfeng Zhou, Long He, Manoj Karkee, Qin Zhang</i>	
Runoff Nutrient Transport As Affected By Land Application Method, Swine Growth Stage, and Runoff Rate	836
<i>J. E. Gilley, S. L. Bartelt-Hunt, X. Li, D. B. Marx, D. D. Snow, D. B. Parker, B. L. Woodbury</i>	
Identification of Citrus Greening Disease Using a Visible Band Image Analysis	848
<i>Alireza Pourreza, Won Suk Lee, Eran Raveh, Youngki Hong, Hyuck-Joo Kim</i>	
Wind Field Measurement for the Supplementary Pollination Using Two Types Unmanned Helicopter in Hybrid Rice Breeding	858
<i>Pei Wang, Xiwen Luo, Lian Hu, Zhiyan Zhou, Yubin Lan, Ying Zang, Jie He, Yian Yan</i>	

Volume 2

Techno-Economic Modeling of a Degummed Soybean Oil Biorefinery in 2005 & 2012	864
<i>Bailey A. Richardson, Kurt A. Rosentrater</i>	
Determination of Optimum Densification Conditions for Production of Corn Stover Pellets	888
<i>Apoorva Karamchandani, Hojae Yi, Virendra M. Puri</i>	
Research Progress of Energy for Wireless Sensor Networks	892
<i>Xiaomin Li, Ying Zang</i>	
Effect of Processing Conditions on Yield of Screw Press Expressed Palm Oil.....	903
<i>O. A. Adetola, J. O. Olajide, A. P. Olalusi</i>	
Intra-row Weed Recognition Using Plant Spacing Information in Stereo Images	915
<i>Yong Chen, Xiaojun Jin, Lie Tang, Jun Che, Yanxia Sun, Jun Chen</i>	
Performance Evaluation of a Tractor Mounted Yam [<i>Dioscorea</i> spp.] Harvester fitted with a Collection Unit	922
<i>Isaac N. Itodo, J. O. Daudu</i>	

Field Evaluation of Dynamic Characteristics of Dwarf Chinese Hickory Trees for Mechanical Harvest.....	938
<i>Shaozhong Chen, Xiaoqiang Du, Gaohe Qiu, Chuanyu Wu</i>	
Disinfection of Synthetic Municipal Wastewater Effluent by Pulsed UV-Light Treatment.....	948
<i>Gulsad Uslu, Ali Demirci, John M. Regan</i>	
An Investigation of the Pollution Load Caused by Trout Breeding in Karakaya Dam Lake in Turkey	959
<i>Nedim Gurel Ornekci, Gulsad Uslu, Ali Atilla Uslu</i>	
Effect of In-woods Storage of Unprocessed Logging Residue on Biomass Feedstock Quality	968
<i>Yingqian Lin, Fei Pan</i>	
Parameters Associated with Fecal Indicator Bacteria Concentrations in the Water Column and Bottom Sediments of Stroubles Creek, Virginia, USA.....	983
<i>Hehuan Liao, Leigh-Anne Krometis, Cully Hession, Karen Kline, Leanna House, Brian Badgely</i>	
Biodegradation of Lambda Cyhalothrin by Ralstonia eutropha	990
<i>Gülsad Uslu, Irem Özdemir-Atay</i>	
Thickness Grading Impacts on Milling and Physicochemical Properties of Long-Grain Rice	996
<i>B. C. Grigg, T. J. Siebenmorgen</i>	
Determination of Degree of Infestation of Triticale Seed Using NIR Spectroscopy	1006
<i>Mahmoud K. Khedher Agha, Won Suk Lee, Chuan Wang, Richard W. Mankin, Nikolay Bliznyuk, Ray A Bucklin</i>	
Processing Approaches to Improve Functionality and Value of Soybean Products.....	1012
<i>Jordan J. Foley, Kurt A. Rosentrater, Buddhi Lamsal, Nitya Poovaiah</i>	
IMPACT of Irrigation Management Strategy on Sizing of a Solar-powered Center Pivot Irrigation System	1039
<i>Hafiz Faizan Ahmed, Warren Helgason</i>	
Relationship Between Biomass Feedstock Electrical Capacitance and Bulk Density During Compression.....	1044
<i>Yuesheng Tan, Zewei Miao, Tony E. Grift, K. C. Ting</i>	
Impact of Anaerobic Digestion of Liquid Dairy Manure on Ammonia Volatilization Process	1054
<i>K. Koirala, P. M. Ndegwa, H. S. Joo, C. Frear, C. O. Stockle, J. H. Harrison</i>	
Evaluating the Effectiveness of BMPs with Future Climate Scenarios in a Forested Watershed in Mississippi	1068
<i>Abdullah O. Dakhalla, Prem B. Parajuli</i>	
Some Properties of Evolving Distillers Dried Grains with Solubles (DDGS) in 2012.....	1080
<i>Weitao Zhang, Kurt A. Rosentrater</i>	
Band Selection of Hyperspectral Images for detecting Blueberry Fruit with Different Growth Stages	1099
<i>Ce Yang, Won Suk Lee, Paul Gader</i>	
Fractionation of Distillers Dried Grains with Solubles (DDGS) through a Destoner	1107
<i>Weitao Zhang, Kurt A. Rosentrater</i>	
Effect of Intermittent Lighting on Production Performance of Laying-Hen Parent Stocks.....	1124
<i>He Ma, Baoming Li, Hongwei Xin, Zhengxiang Shi, Yang Zhao</i>	
Effects of Deterioration Parameters on Storage of Maize	1134
<i>R. A. Suleiman, K. A. Rosentrater, C. J. Bern</i>	
Techno-Economic Modeling of Coproduct Processing in a Corn Based Ethanol Plant in 2012	1185
<i>Christine Wood, Kurt A. Rosentrater, Kasiviswanath Muthukumarappan</i>	
Estimation of Bulk DON Content of Small Grain Samples for Comprehensive Evaluation of Fusarium Head Blight Resistance in Wheat	1215
<i>K. H. S. Peiris, Y. Dong, W. W. Bockus, F. E. Dowell</i>	
Influence of Suspended Solids Adsorption Properties and Concentration on Ammonia Volatilization Mechanism from Dairy Manure	1225
<i>K. Koirala, P. M. Ndegwa, H. S. Joo, C. Frear, C. O. Stockle, J. H. Harrison</i>	
Estimation of Bulk Deoxynivalenol and Moisture Content of Wheat Grain Samples by FT-NIR Spectroscopy.....	1244
<i>K. H. S. Peiris, Y. Dong, W. W. Bockus, F. E. Dowell</i>	
Optimization of the Pyrolysis of Distillers Dried Grains with Solubles	1252
<i>Christine Wood, Kasiviswanathan Muthukumarappan, Kurt A. Rosentrater</i>	
Emissions of Greenhouse Gases from Naturally Ventilated Free-Stall Dairy Barns.....	1281
<i>Hung-Soo Joo, Pius M. Ndegwa, Albert J. Heber, Ji-Qin Ni, W. W. Bogan, Juan Carlos Ramirez-Dorronsoro, Erin Cortus</i>	
Effects of Anaerobic Digestion and Application Methods on Ammonia Emission from Land Applied Dairy Manure.....	1293
<i>X. Wang, H. S. Joo, G. M. Neerackal, P. M. Ndegwa, J. H. Harrison, A. J. Heber, J. Ni</i>	
Effects of Manure Managements on Ammonia, Hydrogen Sulfide and Greenhouse Gases Emissions from the Naturally Ventilated Dairy Barn	1302
<i>H. S. Joo, P. M. Ndegwa, G. M. Neerackal, X. Wang, J. H. Harrison</i>	
Remote Hydraulic Circuits for Zero Turning Radius Mowers.....	1312
<i>Kendall R. Kirk, Hunter F. Massey, Benjamin T. Woody</i>	
Development of a Disposable Impedance Biosensor and Its Application for Determination of Escherichia Coli O157:H7.....	1320
<i>Yixian Wang, Zunzhong Ye, Yibin Ying</i>	
Estimating the Diameter and Volume of Vidalia Sweet Onions Using the Consumer-grade RGB-depth Camera	1329
<i>Weilin Wang, Changying Li</i>	
Three-Dimensional Reconstruction of a Dormant Tree Using RGB-D Cameras	1341
<i>Qi Wang, Qin Zhang</i>	
Mobile, Cloud-Based Farm Management: A Case Study with Trello on My Farm.....	1351
<i>Aaron Ault, James Krogmeier, Dennis Buckmaster</i>	
The Design and Dynamics Simulation Analysis of the Casting -furrow Opener in the Ditch	1365
<i>Fang Liang, Decheng Wang, Guanghui Wang, Leilei Zhang, Yong Yu</i>	

Development of Auto-guidance Error Measurement System Using Laser Distance Sensors.....	1372
<i>Joonyong Kim, Young-Joo Kim, Jaewan Lee, Hak-Jin Kim, Jung-Hun Kim</i>	
Amperometric Determination of Bisphenol A in Milk Using Ionic Liquid-carbon Nanotube Composite Electrode	1382
<i>Ling Zhou, Jianping Wang, Dujuan Li</i>	
Effects of Drip Irrigation System Uniformity and Nitrogen Applied on Deep Percolation and Nitrate Leaching During Growing Seasons of Spring Maize in Semi-humid Region	1391
<i>Zhen Wang, Jiusheng Li, Yanfeng Li</i>	
Development of Middleware Layer Supporting Sensor Observation Service for a Simple Weather Station.....	1410
<i>Joonyong Kim, Taehyeong Kwon, Chungu Lee, Seunghwan Baek, Alireza Ashtiani-Araghi, Joong-Yong Rhee</i>	
Prediction of the Total Viable Bacterial Count Based on Visible/near Infrared Spectra During Pork Spoiling	1420
<i>Xiuying Tang, He Guo, Yankun Peng, Yang Xu, Jie Zheng</i>	
Effects of Harvest Time and Ensilage on Anaerobic Digestion of Corn Stover	1429
<i>Xiang Chen, Fang Liang, Wei Yan, Rolf Kloss, Kuichuan Sheng, Xianbin Bao</i>	
Effect of Process Parameters on Densification of Rice Husk at Medium Pressures.....	1437
<i>Mohammed Bakari, Michael Ngadi</i>	
The Influence of Artificial Disturbance on Soil Carbon Content on Grassland	1449
<i>Hongxiang Shen, Yongbin Xu, Chenxu Guo, Guanghui Wang, Decheng Wang, Donghui Lu</i>	
Machine Vision and Mechanism Combination Techniques for Seedlings Quality Evaluation Based on Leaf Area	1456
<i>Jun H. Tong, Huan Y. Jiang</i>	
Discrete Element Analysis of the Discharge of Biomass Briquettes Stored in Bins	1465
<i>C. Gonzalez-Montellano, E. Gallego, A. Ramirez, J. M. Fuentes, F. Ayuga</i>	
A Comparative Analysis of ABE Bachelor of Science Programs in European and US Universities	1472
<i>Francisco Ayuga, José M. Fuentes, Álvaro Ramírez-Gómez, Ana I. García, Pedro J. Aguado</i>	
Automated Sensing and Control of Hydroponic Macronutrients Using a Computer-controlled System.....	1479
<i>Dae Hyun Jung, Hak-Jin Kim, Won Kyung Kim, Chang Ik Kang, Gyeong Lee Choi</i>	
Development and Performance Testing of a Light Source System on a Smart Sprayer for Spot-Application of Agrochemical in Wild Blueberry Fields.....	1485
<i>T. Esau, Q. Zaman, D. Groulx, Y. Chang, A. Schumann, P. Havard, A. Farooque</i>	
Influence of Management Strategies on Sustainability of Row Crop Production using the Field to Market Fieldprint Calculator.....	1495
<i>Lori A. Gibson, Michael J. Buschermohle</i>	
Evaluation of Electrolyzed Oxidizing Water for Cleaning-In-Place of On-Farm Milking Systems	1502
<i>Xinmiao Wang, Satyanarayan R. S. Dev, Ali Demirci, Robert E. Graves, Virendra M. Puri</i>	
Effect of Heat Treatment on Equilibrium Moisture Content of Southern Pine.....	1515
<i>Manunya Phanphanich, Tyler Westover</i>	
Online Tool for GR Horseweed (Conyza Canadensis) Gene Flow.....	1523
<i>Junming Wang, Haiyan Huang, Rongjian Ye, Yanhui Peng, C. Neal Stewart Jr., David R. Miller, Ted W. Sammis</i>	
Optimization of Human Lysozyme Production by Kluyveromyces lactis K7 in Biofilm Reactors	1533
<i>Duygu Ercan, Ali Demirci</i>	
Review of Housing Options for Gestating Sows.....	1542
<i>Dustin J. Schau, Jeremy D. Brue, Kurt A. Rosentrater</i>	
Gaseous Emissions from Agricultural Biomass Combustion: A Prediction Model	1568
<i>Sébastien Fournel, Bernard Marcos, Stéphane Godbout, Michèle Heitz</i>	
Comparison of Sprinkler Droplet Size and Velocity Measurements using a Laser Precipitation Meter and Photographic Method.....	1579
<i>Bradley King, Troy Winward, David Bjorneberg</i>	
Calculating Friction Loss for Column Pipe When a Line Shaft is Present.....	1592
<i>Joseph C. Henggeler, Allen L. Thompson</i>	
Emissions of NH₃, H₂S, VOC, PM₁₀ and PM_{2.5} from Swine Production Facilities in North America: A Meta-analysis.....	1610
<i>Zifei Liu, Wendy Powers</i>	
Three-Phase Foam Analysis and the Development of a Lab-Scale Foaming Capacity and Stability Test for Swine Manures.....	1647
<i>Mark B. Van Weelden, Daniel S. Andersen, Kurt A. Rosentrater, Steven L. Trabue, Brian J. Kerr</i>	
The Impact of Carbohydrate and Protein Level and Sources on Swine Manure Foaming Properties	1661
<i>Mark B. Van Weelden, Daniel S. Andersen, Kurt A. Rosentrater, Brian J. Kerr, Steven L. Trabue</i>	
Fed-Batch Fermentation for Human Lysozyme Production by Kluyveromyces lactis K7 in Biofilm Reactors.....	1674
<i>Duygu Ercan, Ali Demirci</i>	
Preliminary Study of NIR Model Transfer in the Determination of Cotton Trash Components	1681
<i>Yongliang Liu, Devron Thibodeaux, Jonn Foulk, James Rodgers</i>	
Evaluation of a Laser Scanning Sensor for Variable-rate Tree Sprayer Development	1689
<i>Hui Liu, Heping Zhu, Yue Shen, Yu Chen, H. Erdal Ozkan</i>	
Advanced Upgrading of Pyrolysis Oil Via Liquid-Liquid Extraction	1701
<i>Yi Wei, Hanwu Lei</i>	
Renewable Phenols and Fuel Production from Catalytic Pyrolysis of Lignin Using Microwave Irradiation Heating.....	1707
<i>Quan Bu, Hanwu Lei, Lu Wang, Junming Tang</i>	

Volume 3

Delay Times of a LiDAR-guided Precision Sprayer Control System	1741
<i>Yue Shen, Heping Zhu, Hui Liu, Yu Chen, H. Erdal Ozkan</i>	
Effect of Flushing Velocity and Elapsed Time on Sediment Transport in Driplines	1750
<i>Jaume Puig-Bargués, Freddie R. Lamm</i>	
Inverse Dispersion Modeling of Bioaerosol Emissions from Manure Application Sites	1763
<i>Michael Jahne, Shane Rogers, Kelsey Lopez, Seungo Kim, Stefan Grimberg, Thomas Holsen</i>	
Physical Properties of Extruded Corn Coproducts	1771
<i>Jordan J. Foley, Kurt A. Rosentrater</i>	
Pretreatment Methods for Lignocellulosic Biomass to Ethanol.....	1794
<i>Weitao Zhang, Minliang Yang, Kurt A. Rosentrater</i>	
Optimization of Bio-oil Production from Pyrolysis of Whole Algal Biomass	1820
<i>Monet Concepcion C. Maguyon, Sergio C. Capareda</i>	
Developing Sediment Load Thresholds Protective of Aquatic Life	1832
<i>G. Yagow, B. Benham, K. Kline, C. J. Mitchem</i>	
Influence of Droplet Size and Velocity on Droplet Impact Process on Waxy Leaf Surfaces	1842
<i>Xiang Dong, Heping Zhu, Xuejun Yang</i>	
Carbon Catalyst from Corn Stover and its Application to Catalytic Microwave Pyrolysis	1854
<i>Lei Zhu, Hanwu Lei, Lu Wang, Quan Bu, Yi Wei, Yupeng Liu, Jing Liang</i>	
Characterizing the Response of a Hyperspectral Camera Used in Close Range Imaging under Laboratory Conditions.....	1861
<i>Peter Ako Larbi, Suraj Amatya, Manoj Karkee</i>	
Catalytic Upgrading of Douglas Fir Sawdust Pellet Vapors Over Zn/ZSM-5 Catalysts in a Packed-bed Catalysis Reactor	1869
<i>Lu Wang, Hanwu Lei, Quan Bu, Lei Zhu, Yupeng Liu, John Lee, Shulin Chen, Juming Tang</i>	
Effect of Swirl Chamber Geometric Configuration on the Spray Cone Angle Characteristics of a Swirl Nozzle for Use on Equipment for Teaching Chemical Pesticide Application Technology	1889
<i>Adewunmi Taiwo</i>	
Cyclone Energy: Impact of Inlet Velocity and Outlet Évasé Designs.....	1900
<i>Paul A. Funk, Greg A. Holt, Derek P. Whitelock</i>	
Optimization Design of Aerated Struvite-Crystallizer for Recovering Phosphorus from Swine Manure Using Computational Fluid Dynamics	1906
<i>Zhiying Han, Ruoling Dong, Shixia Chen, Xirui Chen, Songming Zhu, Zhangying Ye</i>	
Measurement of Degree of Milling for Rice Using Hyperspectral Imaging	1912
<i>Wei-Tung Chen, Yan-Fu Kuo</i>	
New Tools for ET Estimation and Irrigation Management in Specialty Crops	1920
<i>Lee F. Johnson, Michael Cahn, Frank Martin, Forrest Melton, Christopher Lund, Barry Farrara, Sharon Benzen</i>	
Effect of Irrigating Slightly Acidic Electrolyzed Water on Lettuce Photosynthesis under Mild Water Stress	1928
<i>Chennan Zhou, Fanyu Qi, Xiaoquan Hua, Zhaoqin Wang, Zhangying Ye, Jinsong He, Songming Zhu</i>	
Quantitative Evaluation of the Floral Shape Variation in <i>Sinningia Speciosa</i> Domestication	1933
<i>Yan-Fu Kuo, Li-Kang Weng, Tzu-Kuei Lee, Hao-Chun Hsu, Ta-Te Lin, Chun-Neng Wang</i>	
Effect of High Pressure on Inactivation of <i>Escherichia Coli</i> in Frozen Suspension	1941
<i>Guangming Su, Minsheng Zhou, Jinsong He, Yong Yu, Songming Zhu</i>	
The Optimization Design of the Multilayer Scraper Manure Cleaning System Based on Discrete Element Method	1949
<i>Heng Li, Tengfei Li, Hongying Wang, Baoming Li, Jie Yang</i>	
Evaluation of DRAINMOD Model to Study Groundwater Table Dynamics and N Load in Western Pampas, Argentina	1958
<i>G. Vazquez-Amabile, N. Bosch, A. P. Ricca, M. L. Ortiz-De-Zarate, D. Rojas, J. Lascombes, V. Parra, G. Duarte, M. F. Feiguin</i>	
Rural Geo-Information Extraction Based on GNSS Data Mining	1972
<i>Yaping Cai, Caicong Wu, Jing Zhao</i>	
Estimation of Fruit Locations Inside Orchard Tree Canopies Using Radio Signal Ranging and Trilateration	1983
<i>Stavros G. Vougioukas</i>	
Effect of Natural Daylight Intensity, Overnight Artificial Led Light Colors and Duration on Growth Performance of Female Broilers.....	1990
<i>Mingli Zhang, Jinming Pan, Yue Yu, Minsi Lv</i>	
Fuzzy Comprehensive Evaluation Model for Estimating the Quality of Extruded Corn Used as Animal Feed Ingredient	1997
<i>Lu Wang, Hongying Wang, Hui Li, Heng Li, Jie Yang, Wencheng Huang</i>	
Design of a Ultrasonic Atomization Nozzle with Compound Gauss-profile Horn for Big Form Factor	2006
<i>Daipeng Lu, Jianmin Gao</i>	
Diffusion and Production of Carbon Dioxide in Bulk Corn at Various Temperatures and Moisture Content	2012
<i>Haibo Huang, Mary-Grace C. Danao, Kent D. Rausch, Vijay Singh</i>	
A Survey on the Utilization of Agricultural Machinery in South Korea	2024
<i>Byounggap Kim, Seung-Yeoub Shin, Hyeong-Kwon Kim, Yuyong Kim</i>	
Size Distributions of Droplets Generated by Low-frequency Ultrasonic Atomizer	2028
<i>Jingyu Zhang, Jianmin Gao</i>	
Impedance Characteristic of a Novel Low Frequency Ultrasonic Nozzle.....	2035
<i>Teng Yue, Jianmin Gao</i>	

Nondestructive Determination of the Soluble Solid Content for Tomato Using Hyperspectral Diffuse Transmittance Imaging	2048
<i>R. Y. Zhang, Y. B. Ying, X. Q. Rao, Y. W. Gao, D. Hu</i>	
Experimental Study on Loading Capacity of Bottom Net Used in Enriched Cage for Laying Breeder Hens	2055
<i>Tengfei Li, Heng Li, Hongying Wang, Baoming Li, Jie Yang</i>	
Effect of Slightly Acidic Electrolyzed Water for Inactivation of Escherichia coli on White Shrimp (Litopenaeus vannamei)	2065
<i>Fanyu Qi, Qiqi Zheng, Nan Yang, Peifeng Liu, Jinsong He, Songming Zhu, Zhangying Ye</i>	
Using Digital Image Classification Methods and Hyperspectral Imaging to Detect Leaf Blast in Rice	2071
<i>Lulu Wu, Long Qi, Xu Ma, Zhixiong Zheng, Guorui Chen, Zehua Li, Junfeng Xie</i>	
The Sensory Quality of Cucumber Juice after High Pressure Processing and Heat Treatment	2080
<i>Chunfang Wang, Feifei Hu, Yao Zhan, Yong Yu, Jinsong He, Songming Zhu</i>	
Experimental Study on Mechanical Properties of Some Deep-rhizome Chinese Herbal Medicines	2092
<i>Guorui Chen, Xu Ma, Long Qi, Zhixiong Zheng, Junfeng Xie, Chaohui Lin</i>	
The Impact of Auxiliary Spillway Flows from Irene and Lee on NRCS Flood Control Dams in NY	2101
<i>Peter Wright, Chris Henry, James Malone, Tyler Desiderio, John Patrick Hock, Kimberly Junkins, John Marrs, Michael Martin, Nicholas Rugnetta</i>	
Optimization of Energy Efficiency in a Batch Grain Dryer	2108
<i>H. Tapani Jokiniemi, Jukka M. Ahokas</i>	
Discrete Event Simulation of Switchgrass Harvest Schedules	2112
<i>Devita McCullough, Robert Grisso, John Cundiff</i>	
Development of SCC Counter	2120
<i>P. Tongel, J. Broucek</i>	
Near-infrared Reflectance Spectroscopy for Predicting Free Water Content of Beef	2124
<i>Ming Tang, Yang Xu, Yankun Peng, Xiaoyu Tian</i>	
Development of Rapid Electronic Mastitis Test	2132
<i>P. Tongel, J. Broucek</i>	
Purification Effect of Industrialized Turtle-breeding Wastewater Using an Improved Celery Ecological Floating-bed System	2136
<i>Kun Xiang, Songming Zhu, Kuoqiu Yan, Chongjun Chen, Zhiying Han, Rongjin Zheng</i>	
The Use of Secant Pile Walls in the Rehabilitation of the Pohick Creek Dam No. 2 (Lake Barton) Auxiliary Spillway	2147
<i>Alica J. Ketchem, Gerald W. Wright, Mathew J. Lyons</i>	
Modelling of Energy Requirement for Tillage Operation	2155
<i>O. A. Oyelade, K. C. Oni</i>	
Comparison of Optimal Wavelengths Selection Methods for Visible/near-infrared Prediction of Apple Firmness and Soluble Solids Content	2182
<i>Qibing Zhu, Min Huang, Renfu Lu, Fernando Mendoza</i>	
Shade Structure Design and Evaluation	2195
<i>Roger A. Eigenberg, Tami M. Brown-Brandl, Morgan Hayes</i>	
An Alternative Approach to the Actual Brazilian Maize Crop Zoning	2205
<i>Jessica De Sousa Paixao, Camilo De Lelis Teixeira De Andrade, Axel Garcia Y Garcia, Tales Antônio Amaral, Antonio Jose Steidle Neto, Fabio Ricardo Marin, Maria Emilia Borges Alves, Denise Freitas Silva, Celina Candida Ferreira Rodrigues, Talita Coutinho Teixeira</i>	
Comparison of Subsurface Pressure Created by Radial Agricultural Tires and Agricultural Tracks	2221
<i>Benjamin R. Rethmel, Bradley J. Harris</i>	
Factors Affecting Soil Phosphorus and Potassium Estimation by Reflectance Spectroscopy	2233
<i>Guotian Hu, Kenneth A. Sudduth, D. Brenton Myers, Dongjian He, Manjula V. Nathan</i>	
Mechanization of Production and Processing of Cassava for Value Addition in Nigeria	2243
<i>K. C. Oni, O. A. Oyelade</i>	
Real-time Tree Foliage Density Estimation with Laser Scanning Sensor for Variable-Rate Tree Sprayer Development	2274
<i>Yu Chen, Heping Zhu, H. Erdal Ozkan</i>	
Effect of Tile Drain Depth and Spacing on Nitrogen Losses Under Corn and Soybean Rotation	2286
<i>C. S. Tan, T. Q. Zhang</i>	
Yield and Nitrate Leaching in a Rainfed Maize Crop Using Swine Manure and Mineral Fertilizer as Nitrogen Sources	2300
<i>Denise Freitas Silva, Camilo De Lelis Teixeira De Andrade, Alvaro Vilela Resende, Axel Garcia Y Garcia, Celina Candida Ferreira Rodrigues, Talita Coutinho Teixeira, Tales Antonio Amaral, Jessica Sousa Paixao</i>	
Exploration into a Transdisciplinary Model for International Sustainable Development Projects	2320
<i>Christopher M. Limiac, Michael R. Sheehan, John H. Lumkes</i>	
Development of a Mechanical Undercutting System to Minimize Sweetpotato Skinning during Harvest	2327
<i>Bradley H. Hayes, Jason K. Ward, John W. Lowe, Jeremiah D. Davis, Mark W. Shankle, Ramon A. Arancibia</i>	
Detection of Apple Bruises Caused by Picking with the Manipulator Based on Hyperspectral Images	2338
<i>Xiaolei Deng, Qin Zhang, Minzan Li, Long He, Jianfeng Zhou</i>	
Storage of Corn in Silo Bag: Internal Temperature Profile and Product Quality	2348
<i>Camila Taffarel, Solenir Ruffato, Mary-Grace C. Danao, Roberta M. Nogueira, Rodrigo S. Zandonadi</i>	
Partial Least Squares - Discriminant Analysis (PLS-DA) of Miscanthus x Giganteus by FT-NIR Spectroscopy	2358
<i>Daniel A. Williams, Mary-Grace C. Danao, Marvin R. Paulsen, Kent D. Rausch, Ana B. Ibáñez, Stefan Bauer</i>	

A Rapid Instrument Designed for Identifying the Authenticity of Agricultural Products	2371
<i>Wenshen Jia, Jihua Wang, Yubin Lan, Wenfu Wu, Zhihong Ma, Dong Wang</i>	
Development and Validation of a Technoeconomic Analysis Tool for Early-stage Evaluation of Biorenewable Processes	2376
<i>Joshua T. Claypool, D. Raj Raman</i>	
Monitor of Apple Tree Growth Status Based on Spectral Technology	2380
<i>Xiaolei Deng, Minzan Li, Lihua Zheng, Yao Zhang</i>	
Sensor-based Canopy Mapping Using Photosynthetically Active Radiation Interception in Y-trellis Tree Fruit Orchards	2389
<i>Jingjin Zhang, Matthew Whiting, Qin Zhang</i>	
Development of a Prioritization Scheme for BMPs to Insure Water Quality Treatment Goals are Met: As Part of a Report for an EPA 319 Grant Application	2402
<i>Brett Schrey, Mary L. Searing</i>	
Application of an AgLeader® Cotton Yield Monitor for Measuring Peanut Yield: A Multi-State Investigation	2406
<i>Wesley M. Porter, Jason Ward, Kendall R. Kirk, Randal K. Taylor, Jacob B. Fravel, Chad B. Godsey</i>	
Evaluation of Multi-Pass Mechanical Harvest on Sweet Cherry	2418
<i>Long He, Jianfeng Zhou, Qin Zhang, Manoj Karkee</i>	
Analysis and Prediction of Unreacted Starch Content in Corn Using FT-NIR Spectroscopy	2426
<i>Benjamin M. Plumier, Mary-Grace C. Danao, Vijay Singh, Kent D. Rausch</i>	
Stalk Strength and Sugar Content of Different Dual-Purpose Sorghum Lines	2437
<i>Shih-Fang Chen, Patrick Brown, Mary-Grace Danao</i>	
Preliminary Investigation of Catalytic Decarboxylation of Fatty Acids and Esters	2451
<i>Dongyun Wang, Jon Van Gerpen, B. Brian He</i>	
Feeding Cattle without the Feedlot	2465
<i>Jason Gross, Chris G. Henry</i>	
Plant or Tree Reconstruction Based on Stereo Vision	2476
<i>Zhijiang Ni, Thomas F. Burks</i>	
Effect of Ground Speed and Header Revolutions on the Picking Efficiency of Wild Blueberry Harvester	2485
<i>A. A. Farooque, Q. U. Zaman, D. Groulx, T. Nguyen-Quang, D. Yarborough, A. W. Schumann, Y. K. Chang, T. J. Esau</i>	
Harvest Management Information System for Specialty Crops	2497
<i>Yiannis Ampatzidis, Li Tan, Ronald Haley, Riley Wortman, Matthew Whiting</i>	
Structure Characterization of Bacterial Cellulose During Dehydration Process	2506
<i>Lin Fang, Jeffrey M. Catchmark</i>	
Field Testing of Bone Screening and Beneficial Reuse of Large Animal Mortality Compost	2515
<i>Alica J. Ketchem, Robert A. Clark, Robert Peer, Gregory Evanylo</i>	
A Remotely Controlled Bin-Dog for Transferring Bins in Orchard Environments	2531
<i>Yunxiang Ye, Long He, Jianfeng Zhou, Qin Zhang, Karen Lewis</i>	
Application of Excess Shear Stress and Mechanistic Detachment Rate Models for the Erodibility of Cohesive Soils	2540
<i>Erin R. Daly, Garey A. Fox, Abdul-Sahib T. Al-Madhhachi</i>	
Impact of Blade Angle on Miscanthus Harvesting Energy Requirement	2551
<i>J. D. Maughan, S. K. Mathanker, T. E. Grift, A. C. Hansen</i>	
Modified Excess Shear Stress Model Parameters based on Mechanistic Predictions from a Detachment Rate Model	2565
<i>Abdul-Sahib T. Al-Madhhachi, Garey A. Fox</i>	
Sediment and Phosphorus Loading from Protected and Unprotected Streambanks in Eastern Oklahoma	2584
<i>Ron Miller, Garey A. Fox, Chad J. Penn, Sharla Lovern, Rebecca Purvis</i>	
Using Laser Sensor for Measuring Crop Conditions in Precision Agriculture	2595
<i>Yongjun Zheng, Yubin Lan, Feng Kang, Chao Ma, He Chen, Yu Tan</i>	
Development of an UGV System for Measuring Crop Conditions in Precision Aerial Application	2603
<i>Yongjun Zheng, Yubin Lan, Bo Xu, Zhigang Wang, Yu Tan, Shumao Wang</i>	

Volume 4

Development of a High-Efficient Weeding Robot in the Crop Fields	2615
<i>Jun Che, Yong Chen, Lie Tang, Yan Wang, Xiaojun Jin, Jun Chen</i>	
Variation in Runoff at Different Watershed Scales in the Hilly-gully Region on the Loess Plateau	2624
<i>Qinghong Yan, Cuiping Yuan, Tingwu Lei, Qixiang Lei, Guangxu Su, Leping An</i>	
Tension Detection of Mono Chain Ropeway System for Hilly Orchard	2633
<i>Jun Li, Tian-Sheng Hong, Zhou Yang, Jian Su</i>	
Classification of Different Level of Aflatoxin B1 on Corn Kernels Surface Using Short-wave Infrared Reflectance Hyperspectral Imaging	2640
<i>Wei Wang, Kurt C. Lawrence, Gerald W. Heitschmidt, William R. Windham, Yankun Peng, Xuan Chu, Nannan Zhang</i>	
Development of Portable Agricultural Machinery Monitoring and Center-Navigation System	2649
<i>Caicong Wu, Lianjun Ding, Yaping Cai, Mengjia Luo, Jing Zhao</i>	
Study on the Model for Volume Estimation of Landslides by Using 3-D Laser Scanner in Wenchuan Earthquake Area	2655
<i>Zhanpeng Chen, Tingwu Lei, Qinghong Yan, Heng Hu, Mingbiao Xiong</i>	
Radio Frequency Assisted with Hot Air Drying Protocol and Uniformity of In-shell Macadamia Nuts	2663
<i>Yunyang Wang, Li Zhang, Juming Tang, Shaojin Wang</i>	

Applicability Evaluation of Corn Harvesting Machinery in Northern China	2674
<i>Xiufeng Lu, Zhian Zheng, Baoling Yang, Zhenjiang Gao, Xingying Chen</i>	
Comparison of Two Prediction Models for Surface Soil Moisture Measurement Using Near-infrared Sensor	2680
<i>Zhe Yin, Tingwu Lei, Zhanpeng Chen, Qinghong Yan, Yuequn Dong</i>	
Spraying Efficiency of Slightly Acidic Electrolyzed Water for Reducing Foodborne Pathogens and Natural Microflora on Shell Eggs	2687
<i>L. Ni, B. M. Li, W. Cao, Z. H. Yan, W. C. Zheng</i>	
Transversal Vibration Analysis of Mono Chain Ropeway System	2694
<i>Jun Li, Tian-Sheng Hong, Zhou Yang, Yu-Qing Zhu</i>	
The Variation of Gelatinization of Ingredients for Piglet Feed Based on the Expanding and Pelletizing Technology	2700
<i>Hui Li, Hongying Wang, Lu Wang, Jie Yang</i>	
Signal Transmission and Node Deployment of a 2.4 GHz Wireless Sensor Network: A Case Study in a Persimmon Orchard	2708
<i>Wenting Han, Yi Wang, Su Ki Ooi, Congcong Guo</i>	
Soil Disinfection with Ozone (O₃) As an Alternative to Methyl Bromide - A Sustainable Practice in Agriculture	2735
<i>Nahed Msayleb, Ramesh Kanwar, J. (Hans) Van Leeuwen, Alison Robertson, Gregory Tylka</i>	
Current Situation and Influencing Factors of Large and Medium Tractors Update in China	2747
<i>Xiufeng Lu, Zhian Zheng, Baoling Yang, Zhenjiang Gao, Zheng Lou</i>	
The Effect of Soaking and High Pressure Processing on Cooking Properties of Brown Rice	2752
<i>Yao Zhan, Feifei Hu, Chunfang Wang, Yong Yu, Jinsong He, Songming Zhu</i>	
Effects of Biomaterial on Ammonia Recovery During Swine Manure Composting	2759
<i>X. Tao, B. Shang, H. Dong, D. Guo</i>	
Mobile Short Message Remote Control for Automatic Irrigation System	2766
<i>Zhengying Wei, Zhanpeng Huo, Meng Zhang, Biao Li, Yiping Tang</i>	
Fluid-Structure Interaction Analysis on Pressure-Compensating Emitters	2774
<i>Zhengying Wei, Xing Zhou, Weijing Yuan, Guangxi Zhao</i>	
The Effect of Carbonization Conditions on Characteristics of Corn-Stalk and Rice-Straw Derived Biochar	2783
<i>Yanhui Lin, Jun Guo, Kuichuan Sheng, Yihua Xia, Thomas Scilley</i>	
Discrimination of Tomato Yellow Leaf Curl Disease using Hyperspectral Imaging	2792
<i>Jinzhu Lu, Di Cui, Huanyu Jiang</i>	
Effect of High Pressure Treatment on Colour Degradation of Fresh Chinese Bayberry, Fresh-cut Yacon and Carrot	2803
<i>Feifei Hu, Yi Lin, Hongmin Zhang, Chunfang Wang, Yao Zhan, Yong Yu, Jinsong He, Songming Zhu</i>	
A Real-Time Stereo Vision System for Obstacle Recognition and Motion Estimation	2812
<i>Ta-Te Lin, Kai-Chiang Chuang, An-Chih Tsai, Yu-Sung Chen</i>	
The Device of Forage Carding Design and Experimental Research	2830
<i>Yong Yu, Guanghui Wang, Decheng Wang, Fang Liang, Donghui Lu</i>	
Effect of Deficit Irrigation on the Productivity and Characteristics of Tomato	2836
<i>Ahmed M. Hassan, Mohamed E. Abuarab</i>	
Astaxanthin Extracts from Shrimp (<i>Litopenaeus vannamei</i>) Discards Assisted By High Pressure Processing	2852
<i>Jirui Du, Jinsong He, Yong Yu, Songming Zhu, Jianping Li</i>	
Denitrification Bioreactor Nitrous Oxide Emissions Under Fluctuating Flow Conditions	2861
<i>Laura Christianson, James Hanly, Neha Jha, Surinder Saggar, Mike Hedley</i>	
An Investigation Into the Effect of Traffic and Tillage on Soil Properties and Crop Yields	2868
<i>E. K. Smith, P. A. Misiewicz, K. Chaney, D. R. White, R. J. Godwin</i>	
Optimization of the Energy Value Determination Method for Rice Husk Using Bomb Calorimeter	2881
<i>Mohammed Bakari, Michael Ngadi</i>	
Flow Rates Influence on Manure Ammonia Mitigation Using an Acid-Filled Gas-Permeable Membrane	2893
<i>A. M. Samani Majd, S. Mukhtar</i>	
Application of Nanoparticles (NPs) in Livestock Manure, and Their Effect on Air Emission	2906
<i>D. P. Gautam, M. S. Borhan, G. Liu, S. Rahman</i>	
Analysis of Differently Roasted Arabica Coffee Samples by Electronic Tongue	2932
<i>Evelin Várvölgyi, Lajos Dénes Dénes, Zoltán Kovács, Dániel Szöllosi, András Fekete</i>	
Farm-Scale Biomass Pelletizer Performance for Switchgrass Pellet Production	2938
<i>R. Hilton, D. Ciolkosz, D. Swomley, H. Yi, V. M. Puri, G. Roth</i>	
Analysis of Poultry Vocalizations for Age Estimation using Cepstral Coefficients and C4.5 Classification	2949
<i>N. V. Parrish, D. V. Anderson, W. D. R. Daley, D. F. Britton, S. Harbert, A. B. Webster, C. W. Ritz</i>	
Evaluation of Positive Pressure Air Distribution Systems for Dairy Housing	2956
<i>Mario Mondaca, Christopher Choi, Nigel Cook, Ken Nordlund</i>	
Initial Results Utilizing a Commercially Available Ultrasonic Sensor for Forage Yield Measurement	2964
<i>Shannon Kent, John Lory, Robert Kallenbach, Todd Lorenz, Joni Harper, Gene Schmitz, Wendy Rapp, Brent Carpenter, Danny England</i>	
Variable Rate Fertilizer Application in Wild Blueberry Fields: Impacts on Plant Growth and Yield	2969
<i>Shoaib Saleem, Qamar Zaman, Arnold Schumann, Ali Madani, David Percival, Aitazaz Farooque</i>	
Effect of Split Fertilizer Application on Ammonia Volatilization Losses in Wild Blueberry Fields	2985
<i>A. Abbas, Q. Zaman, A. W. Schuman, R. Donald, G. R. Brewster, S. R. Saleem</i>	
Validating Timber Harvesting Productivity and Cost Information in Michigan Loggers' Survey Using Field-based Studies	2998
<i>Fei Pan, Ajit Srivastava</i>	

Development and Validation of a Computational Fluid Dynamics Model of Pond Temperature and Algal Growth	3006
<i>J. L. Drewry, C. Y. Choi</i>	
An Advanced Conductive Cooling Design to Relieve Heat Stress in Modern Dairies	3018
<i>Yifan Liang, Mario Mondaca, Fernando Rojano, Christopher Y. Choi</i>	
Numerical Simulation of a Quarter Scale Tractor Pull	3029
<i>David I. Epp, Jonathan R. Schuba, Scott D. Noble</i>	
Military Vehicle Trafficking Impacts Vegetation and Soil Bulk Density at Fort Benning, Georgia	3033
<i>A. Retta, L. E. Wagner, J. Tatarko</i>	
Analyzing the Benefits of Manure Separation using Mathematical Optimization	3050
<i>Hongbo Dong, Michael C. Ferris, Tom L. Cox, John Norman, Jim Leverich</i>	
Hydrothermal Catalytic Gasification (HCG) as an Alternative to Anaerobic Digestion	3058
<i>Matthew D. Ong, Lance C. Schideman</i>	
Nondestructive Detection of Pear Firmness Using a Laser Doppler Vibrometer	3060
<i>Wen Zhang, Di Cui, Yibin Ying</i>	
The Adsorption of Xyloglucan and Pectin to Model Crystalline and Amorphous Cellulose Substrates	3069
<i>Jin Gu, Jeffrey M. Catchmark</i>	
An Oscillating and Non-oscillating Subsoiler Shanks and Their Influence on Traction Resistance and Soil Properties	3077
<i>Abdalla N. Osman, Dong Xing Zhang, Rui Zhang, Xia Li</i>	
Enhance Volatile Fatty Acid (VFA) and Bio-methane Productivity by Pretreatment of Lawn Grass	3084
<i>Liang Yu, Jingwei Ma, Quanbao Zhao, Craig Frear, Shulin Chen</i>	
Comparing Semi-continuous Air Sampling Versus 24-hour Bag Samples to Monitor Gas Emissions and Treatment from a Swine Nursery with Biofilters	3096
<i>K. A. Janni, L. D. Jacobson, B. P. Hetchler, J. P. Oliver, L. J. Johnston</i>	
Ammonia Scrubbing Using Electrolyzed Water Spray Scrubber	3115
<i>Amir M. Samani Majd, Ahmad Kalbasi, Saqib Mukhtar, Gerald Riskowski</i>	
Use of Treated Wastewater for Lettuce Cultivation	3126
<i>Vanessa Ribeiro Urbano, Thaís Grandizoli Mendonça, Antonio Claudio Testa Varallo, Reinaldo Gaspar Bastos, Claudinei Fonseca Souza</i>	
Effect of Tractor Pass Frequency on Selected Properties Under Conventional Tillage	3142
<i>Seth I. Manuwa, Matthew Adebayo</i>	
Economic and Environmental Sustainability of Small Nebraska Greenhouse Systems	3160
<i>David M. Mabie, George E. Meyer, Stacy A. Adams</i>	
Kinetics of Phosphorus Sorption in Vegetative Treatment Area Soils	3186
<i>Kelsey B. Regan, Daniel S. Andersen</i>	
Design and Experiment of Intelligent Monorail Cucumbers Harvester System	3193
<i>Zhenyu Yang, Wenqiang Zhang, Junxiong Zhang, Chunlong Zhang, Chao Ji, Wei Li</i>	
Swine Manure Rate, Timing, and Application Method Effects on Post-Harvest Soil Nutrients, Crop Yield, and Water Quality Implications in a Corn-Soybean Rotation	3202
<i>S. Ahmed, S. Mickelson, C. Pederson, J. Baker, R. Kanwar, J. Lorimor, D. Webber</i>	
Coupled Surface-subsurface Flow Hydrodynamic Model for Surface Irrigation	3221
<i>Qin-Ge Dong, Di Xu, Shaohui Zhang, Meijian Bai, Yinong Li</i>	
Heating Energy Consumption, Heat Losses and Heating Energy Saving Possibilities in Case Broiler House in Finland	3235
<i>M. Rajaniemi, J. Tuure, J. Ahokas</i>	
The BioCentury Research Farm: Accelerating Biomass Production and Conversion Research, Development, and Outreach	3242
<i>Darren H. Jarboe, Lawrence A. Johnson, Andrew A. Suby</i>	
Thriving in Drought with Subsurface Drip Irrigation (SDI): Case Studies and Tools	3246
<i>Inge Bisconer, Robert Bergquist</i>	
Performance Evaluation of Surface Inlet Designs	3259
<i>Timothy Rendall, Richard Cooke</i>	
Development of an Automated Algae Growth System	3274
<i>Weiming Cai, Nurhan Turgut Dunford, Ning Wang, Songming Zhu, Yongbo Wan, Yan Zhu</i>	
Study of Audible Sound Effect on Algae Growth	3284
<i>Weiming Cai, Ning Wang, Nurhan Turgut Dunford, Songming Zhu, Huinong He</i>	
Revising Crop Coefficient for Washington Sate	3293
<i>T. Karimi, T. Peters, C. O. Stockle</i>	
Estimating the Growing Season Length Using Remotely Sensed Based Vegetation Indices: A Case Study for Washington State Vineyards	3301
<i>Golnaz Badr, Gerrit Hoogenboom</i>	
Feasibility Study of Estimating Nutritional Quality Properties of Alfalfa Crop Using On-the-Go Measurement of Shear Force during Baling Operation	3313
<i>Mohammad Loghavi, Mohammadmehdi Maharlooee</i>	
Climate Behavior of a Rabbit Barn in Central Mexico by Using Computational Fluid Dynamics (CFD)	3319
<i>Jorge Flores-Velázquez, Federico Villarreal-Guerrero, José L. Lara-Mireles, José I. Montero, Fernando Rojano</i>	
Limitations of Treated Wastewater Reuse in the Middle East and North Africa: Work-in-Progress	3326
<i>Anne Elizabeth Dare, Rabi H. Mohtar, Rachid Boukchina, Ayman Rabi, Basem Shomar</i>	
Prediction of Moisture Content in Maize Leaves Based on Hyperspectral Image	3333
<i>Yu Sun, Di Wu, Wenting Han, Jifeng Ning</i>	

Alkali-ultrasonication, Hot Liquid Water and Ligninolytic Enzymes Pretreatments for Bioethanol Production from Cotton Gin Trash (CGT)	3341
<i>Jersson Placido, Sergio Capareda</i>	
Methods, Techniques, and Considerations for Subirrigation Practices in the Red River Valley of the North	3350
<i>Kyle Horntvedt, Xinhua Jia, Thomas F. Scherer, Dean D. Steele, Thomas M. Desutter</i>	
Adjustable Multiple Terrain Agricultural Robot System	3361
<i>Zhigang Wang, Yubin Lan, W. C. Hoffmann, Yonghui Wang, Pei Wang</i>	
Design and Validation of a Calibrated Orifice Meter for Sub-500 Liter Per Minute Flow Rate Applications	3372
<i>Brett C. Ramirez, Guilherme D. N. Maia, Angela R. Green, Daniel W. Shike, Richard S. Gates, Luis F. Rodriguez</i>	
Assessment of a Prototype Sweet Cherry Harvester	3382
<i>Peter Ako Larbi, Manoj Karkee, Qin Zhang, Matthew David Whiting</i>	
Measurement and Reduction of Airborne Microorganisms and Dust Associated with Livestock Production	3392
<i>Yang Zhao, André J. A. Aarnink</i>	
Evaluation of Modified Variable Rate Granular Fertilizer Spreader for Spot-Specific Fertilization in Wild Blueberry Fields	3400
<i>Hassan S. Chattha, Qamar U. Zaman, Arnold W. Schumann, Gordon R. Brewster, Young K. Chang, Scott Read</i>	
Characterizing Manure and Litter Properties and Their Carbon Dioxide Production in an Aviary Laying-Hen Housing System	3410
<i>Yang Zhao, Deling Zhao, Wei Wang, Hongwei Xin</i>	
Free Chlorine Loss During Spray of Membrane-less Acidic Electrolyzed Water (MLAEW) and Its Antimicrobial Effect on Airborne Bacteria from Poultry House	3427
<i>Yang Zhao, Hongwei Xin, Deling Zhao, Weichao Zheng, Wei Tian, He Ma, Kai Liu, Hui Hu, Tong Wang, Michelle Soupir, Wei Wang</i>	
Improving the Value of Anaerobic Digestion Through Integration of Ammonia Recovery, Biomethane Production and Lignocellulosic Pretreatment	3438
<i>Dennis A. Burke</i>	
Nutrient Runoff from Non-agricultural Areas – Two Catchments in Norway	3447
<i>Håkon Borch</i>	
Low Altitude and Multiple Helicopter Formation in Precision Aerial Agriculture	3459
<i>Zhigang Wang, Yubin Lan, W. C. Hoffmann, Yonghui Wang, Yongjun Zheng</i>	
Anaerobic Digestion of Whole and Lipid-Extracted Algal Biomass from Four Industrial Strains — Determination of Important Methane and Nutrient Information	3468
<i>Craig Frear, Baisuo Zhao, Jingwei Ma, Quanbao Zhao</i>	

Volume 5

Response of Maize Growth and Yield to Different Irrigation and Fertilization Regimes Under Sprinkler Irrigation in Semi-arid Region	3478
<i>Jiangli Wen, Jiusheng Li, Yanfeng Li</i>	
The Selective Removal of H₂S over CO₂ from Biogas in a Bubble Column Using Pretreated Digester Effluent	3488
<i>Nicholas Kennedy, Quan-Bao Zhao, Shulin Chen, Craig Frear</i>	
Psychrophilic Anaerobic Sequencing Batch Reactor with Biofilm Supported by Solids from Dairy Manure	3501
<i>Jingwei Ma, Baisuo Zhao, Quanbao Zhao, Liang Yu, Craig Frear, Shulin Chen</i>	
Ampicillin, Florfenicol, Sulfamethazine, and Tylosin Effect on Biogas Production and Their Degradation Efficiency During Anaerobic Digestion	3508
<i>Shannon M. Mitchell, Jeffrey L. Ullman, Amy L. Teel, Richard J. Watts, Craig Frear</i>	
Current Situation and Development Trend of Fruit and Vegetable Fresh-keeping Packaging Technology	3522
<i>Jie-Li Duan, Hua-Zhong Lu, Zhou Yang, En-Li Lü, Jia-Ming Guo</i>	
Nitrogen and Phosphorus Recovery from Anaerobic Digested Dairy Wastewater	3532
<i>Quanbao Zhao, Craig Frear, Cynthia Alwine, Jingwei Ma, Liang Yu, Shulin Chen</i>	
Radio Propagation Characteristics of 2.4 GHz at Specific Growth Stages of Corn	3540
<i>Haixia Li, Ning Wang</i>	
Improvement of Aquifer Vulnerability Assessment Using DRASTIC (ver. 2012)	3552
<i>Won Seok Jang, Bernie Engel, Larry Theller</i>	
Discrete Element Modeling of Soil-Implement Interaction Considering Soil Plasticity, Cohesion and Adhesion	3558
<i>John Fielke, Mustafa Ucgul, Chris Saunders</i>	
Prediction of Moisture Content in Maize Leaves Based on Near-infrared Spectroscopy	3567
<i>Jifeng Ning, Yu Sun, Shanshan Chen, Wenting Han</i>	
Prediction of Nitrogen Content in Maize Leaves Based on NIR Spectroscopy	3575
<i>Wenting Han, Yu Sun, Di Wu, Jifeng Ning</i>	
Cost Reduction of the Fan Assessment Numeration System through Data Analysis	3582
<i>William S. Sympton, Michael P. Sama</i>	
Corn Automatic Irrigation Expert System Based on Infrared Temperature Sensor and Capacitive Moisture Sensor	3587
<i>Zhigang Wang, Yubin Lan, W. C. Hoffmann, Zhitao Zhang, Yonghui Wang</i>	
GIS Based Environmental Analysis Method for Rural Areas	3599
<i>Hang Chen, Yongsheng Fu, Larry C. Brown</i>	

Evaluation of In-Shell Kernel Moisture Content Monitoring with a Microwave Moisture Meter during Peanut Drying	3605
<i>M. A. Lewis, S. Trabelsi, S. O. Nelson</i>	
Detection of Sucrose Content of Sugar Beet by Visible/Near Infrared Spectroscopy	3615
<i>Leiying Pan, Qibing Zhu, Renfu Lu, J. Mitchell McGrath</i>	
Development of a Mobile App for Remote Monitoring and Control of a Pull Type Field Sprayer	3625
<i>Caner Koç, Abdulkadir Guneytepe, Bulent Perktas, Izem Aykanat</i>	
Capillary Movement in Compacted Soils As Influenced by Added Organic Materials	3632
<i>J. O. Ohu, E. Mamman, A. A. Mustapha</i>	
Critical Moisture Content of Compacted Agricultural Soils with Varying Organic Matter Content	3652
<i>J. O. Ohu, A. A. Mustapha, E. Mamman</i>	
A Fresh-market Apple Harvesting Technique	3665
<i>Mark E. De Kleine, Manoj Karkee, Karen Lewis, Qin Zhang</i>	
Research on the Demand of Alfalfa Harvest Machine in China's Northern and North-west Regions	3672
<i>Zeqi Gong, Donghui Lu, Decheng Wang, Zhiqin Wang, Guanghui Wang</i>	
An Application of Innovative Isolated Device to Water Quality Improvement of Industrialized Turtle-breeding	3681
<i>Wenbin Sun, Kun Xiang, Haisheng Xu, Lei Pei, Songming Zhu, Rongjin Zheng</i>	
Mathematical Modeling and Polysaccharide Content of Ganoderma Lucidum by Hot Air Impingement Drying	3688
<i>Jun-Wen Bai, Hong-Wei Xiao, Zheng Lou, Zhen-Jiang Gao</i>	
Agricultural Products Traceability System with Autonomous Multiple Enterprises Management Supported	3698
<i>Jiaoyue Pu, Haihui Zhang</i>	
Concentrations and Size Distributions of Airborne Particulate Matter and Bacteria in an Experimental Aviary Laying-Hen Housing System	3706
<i>W. Zheng, Y. Zhao, H. Xin, B. Li, R. S. Gates, Y. Zhang, M. Soupîr</i>	
Airborne Particulate Matter and Bacteria Reduction from Spraying Slightly Acidic Electrolyzed Water in an Experimental Aviary Laying-Hen Housing System	3718
<i>W. Zheng, Y. Zhao, H. Xin, R. S. Gates, B. Li, Y. Zhang, M. Soupîr</i>	
Monitoring Grain Bed Conditions during Truck Transport of Soybeans in Brazil	3728
<i>Jonathan W. W. Olsen, Christopher R. Wilhelm, Rodrigo S. Zandonadi, Mary-Grace C. Danao, Richard S. Gates</i>	
Analysis of Effective Power and Reduced, Rotational Force, Specific and Hourly Consumption of Fuel, Efficiency Term-Mechanics and Volumetric for an Agricultural Tractor Fed with Fossil Diesel and Two Types of Biofuels	3745
<i>Carlos Eduardo Silva Volpato</i>	
The Effect of Glucose on Electronic Taste Analyzer	3752
<i>Daniel Szöllosi, Zoltan Kovács, Evelin Várvölgyi, Andras Fekete</i>	
A County-Level Assessment of Manure Nutrient Availability Relative to Crop Nutrient Capacity in Iowa: Analysis of Spatial and Temporal Trends	3756
<i>Daniel S. Andersen</i>	
Behavior Preference and Performance of Female Broilers Under Different Yellow LED Lighting Intensities	3768
<i>Minsi Lu, Wenbin Lin, Zhan Lu, Yue Yu, Jinming Pan</i>	
Advocating the ‘Culture of Mushroom Consumption’ within the Pre-dominant Discourse of Cancer Treatment and the Politico-Economic Challenges to its Adoption	3777
<i>Sanghamitra Nath, Mrittika Bhattacharya, Prem Prakash Srivastav</i>	
Assessing the Effectiveness of Low Impact Development Practices under the Different Urban Patterns Using SWAT	3788
<i>Mijin Seo, Fouad H. Jaber</i>	
Pretreatment and Utilization of Low-value Fibrous Biomass for Bacterial Fermentation of Biosurfactants	3793
<i>Rajat Sharma, Bill Colonna, Buddhi Lamsal</i>	
Low-Moisture Anhydrous Ammonia (LMAA) Pretreatment of Corn Stover	3802
<i>Minliang Yang, Weitao Zhang, Kurt A. Rosentrater</i>	
The Prediction of the Force and Energy Requirements to Fill Soil Engaging Buckets	3822
<i>Richard J. Godwin, Paula A. Misiewicz, David R. White, Tom Underhill</i>	
Impact of Temperature and Mixing on Methane Production Rates of Swine Manures Obtained from Deep Pit Storages	3835
<i>Ana Paula Da Silva Batista, Mark B. Van Weelden, Daniel S. Andersen</i>	
An Advanced Real-time Plant Species Identification System	3843
<i>George E. Meyer, Garret F. Coffman, Kathryn Conroy, Stephen L. Young</i>	
Effect of Microwave-Convective Drying on Antioxidant Activity and Color of Oyster Mushroom (Pleurotus ostreatus)	3854
<i>M. Bhattacharya, P. P. Srivastav, H. N. Mishra</i>	
Microwave Treatments and Modified Atmosphere Packaging to Maintain Postharvest Quality of Saladette Tomatoes	3867
<i>C. M. Notario-Medellín, M. E. Sosa-Morales</i>	
Quantifying the Effects of Climate Change on the Fate and Transport of Microbial Pollutants	3872
<i>Rory Coffey, Brian Benham, Leigh Anne Krometis, Mary Leigh Wolfe, Enda Cummins</i>	
Food Security: Challenges to Water Resources Development in Nigerian	3881
<i>Stephen Olaoye Afolayan, Taiwo Arowosegbe</i>	
An Economic Decision Tool for Calculating Costs and Benefits of Air Treatment Technologies to Manage Odor and Gases from Animal Feeding Operations	3890
<i>William F. Lazarus, Kevin A. Janni</i>	

Nutrient Losses from an Irrigated Watershed in Southern Idaho	3903
<i>David L. Bjerneberg, James A. Ippolito, Anita Koehn</i>	
Survey on Foaming Deep-pit Swine Manure	3914
<i>N. Akdeniz, L. D. Jacobson, C. J. Clanton, B. P. Hetchler</i>	
Performance of Vegetative Treatment Systems for CAFOs in a Northern Subhumid Climate	3923
<i>Todd P. Trooien, Adam Mathiowetz, Stephen Pohl, Arvid Boe, Ron Gelderman, Dennis Today, Christopher H. Hay, Jeppe H. Kjaersgaard</i>	
Development of the Mississippi Irrigation Scheduling Tool - MIST	3936
<i>G. F. Sassenrath, A. M. Schmidt, J. M. Schneider, M. L. Tagert, J. Q. Corbitt, H. Van Riessen, J. Crumpton, B. Rice, R. Thornton, R. Prabhu, J. Pote, C. Wax</i>	
Terrain Analysis and Data Mining Techniques Applied to Location of Classic Gully in a Watershed	3942
<i>Laurimar Gonçalves Vendrusculo, Amy Kaleita</i>	
Addition of Spearmint Essential Oil As a Natural Antioxidant in Palm Olein for Repeated Frying	3951
<i>M. De J. Sánchez-Dichi, M. E. Sosa-Morales</i>	
A Preliminary Study of Helmholtz Resonant for Measurement of Watermelon Volume	3956
<i>Huarui Chen, Huirong Xu, Xiuqin Rao, Kondo Naoshi, Junqi Bao</i>	
Animal Agriculture for a Changing Climate – Using New Ways of Educating Extension Agents	3965
<i>Crystal Powers, Liz Whitefield, David Smith, David Schmidt, Pam Knox, Jennifer Pronto, Jill Heemstra</i>	
Evaluation Methods to Verify the Improvements in Measuring Soil Physical Properties by New Fusion Device Using Geostatistical Analysis	3969
<i>Kyou Seung Lee, Yong Jin Cho, Dong Hoon Lee, Sung Chan Cho, Joongul Park</i>	
Solvent Phase Algal Migration (S.P.A.M.) Process: A Technique for Dewatering Microalgae	3978
<i>Seaborn B. Carter, Sandun D. Fernando</i>	
Effects of Configuration and Headspace Wind Profile on the Performances of Flux Chambers in Gas Emission Measurement: A Laboratory Study	3992
<i>Luyu Ding, Chaoyuan Wang, Qikun Lu, Zhihui Yan, Zhengxiang Shi</i>	
Development of Crop Monitoring System Using 2-channel CCD Image Sensor	4001
<i>Hong Sun, Qian Wu, Minzan Li, Ruijiao Zhao, Lihua Zheng</i>	
Preliminary Study on Nitrogen Monitoring of Potato Plants Using Multispectral Image	4007
<i>Hong Sun, Minzan Li, Qin Zhang, Ashok K. Alva, Zhiyan Zhou</i>	
Optimizing the Pad Cooling Ventilation System of Laying Hen Barn Using CFD in Southeast China	4014
<i>Xiaoshuai Wang, Kaiying Wang</i>	
A Remote Monitoring System of Automatic Soil Sampler Based on ZigBee WSN	4023
<i>Wei Yang, Minzan Li, Lihua Zheng, Hong Sun, Xincheng Li, Meng Zhang</i>	
Development of a Smart Greenhouse Monitoring System Based on Wsn, 3G and PLC Technologies	4029
<i>Lihua Zheng, Minzan Li, Hong Sun, Xiaolei Deng, Zhenjiang Zhong, Jingyi Li, Ya Su, Yi Zhao</i>	
The Design and Implementation of Forage Machinery Management System by Using WEB Database	4036
<i>Jiansong Gao, Zhiqin Wang, Decheng Wang, Guanghui Wang</i>	
A Study of the Uncertainty of Farm-product Prices by Entropy Model using Probability Distribution for Monthly Prices	4044
<i>Sangkyu Eun, Jeong-Jae Lee, Yeongjoung Bae</i>	
Water Temperature and Spraying Interval May Affect the Cooling Effect of the Sprinkler System in Dairy Farm	4058
<i>Zhihui Yan, Zhengxiang Shi, Baoming Li, Chaoyuan Wang, Hao Li, Hao Wang</i>	
Prediction of Water Chlorophyll-a Content Based on Multi-scale Spectral Analysis	4070
<i>Yao Zhang, Lihua Zheng, Minzan Li, Hong Sun, Qin Zhang</i>	
Development of an In-situ Optical Detector to Measure Water Turbidity and Chlorophyll Content	4077
<i>Qin Zhang, Lihua Zheng, Minzan Li, Yao Zhang, Hong Sun, Zhenjiang Zhong, Xiaoshuai Pei</i>	
A Movable Data Acquisition and Production Management System for Apple Orchard	4083
<i>Xiang Guo, Lihua Zheng, Minzan Li, Yao Zhang, Xiaolei Deng, Xiaofei An</i>	
A Remote Operating System of Grain Yield Monitor	4091
<i>Xincheng Li, Minzan Li, Lihua Zheng, Hong Sun, Wei Yang, Meng Zhang</i>	
Experimental Study on T-TDR Sensor Soil Heat Transfer Analysis and Structural Optimization	4097
<i>Wenting Han, Jun Qiao, Jinghui Xu, Jing Zhang</i>	
Removing the Effect of Soil Moisture for Soil TN Prediction Based on a Portable Soil Sensor	4111
<i>Xiaofei An, Minzan Li, Lihua Zheng, Yumeng Liu, Hong Sun</i>	
Application of a Prototype Irrigation Controller for Korean Greenhouse Cultivation	4118
<i>Sung-Wuk Ahn, Hak-Jin Kim, Dong-Hoon Lee, Kyung-Hwa Han, Jin-Young Choi, Sun-Ok Chung</i>	
The Development of an Improved Stripping Mechanism for Sorghum Harvesting	4124
<i>L. Chico-Santamarta, H. Masebu, D. R. White, R. J. Godwin, M. Crook</i>	
Chopped Forage Particle Size Analysis in One, Two and Three Dimensions	4138
<i>Philippe Savoie, Marc-Antoine Audy-Dubé, Guillaume Pilon, René Morissette</i>	
Development of Organomineral Fertilisers Derived from Nutrient-enriched Biosolids Granules: Product Specification	4152
<i>D. L. Antille, R. Sakrabani, S. F. Tyrrel, M. S. Le, R. J. Godwin</i>	
Detection Model of FDR Moisture Content Sensor Affected by Soil Salinity and Temperature	4171
<i>Wenting Han, Bei Liu</i>	
Modifications and Extensions to Design Specifications for Mechanically-Laminated Wood Assemblies	4188
<i>David R. Bohnhoff</i>	

A Comparison of Liquid Hot Water and NaOH Pretreatment on Anaerobic Digestion of Sugar Cane Bagasse for Biogas Production	4216
<i>Hui Li, Kuichuan Sheng, Xiang Chen, Rolf Kloss, Thomas Scilley</i>	
Using a 3D Camera to Evaluate the Back Posture of Dairy Cows	4222
<i>S. Viazzi, T. Van Hertem, A. Schlageter-Tello, C. Bahr, C. E. B. Romanini, I. Halachmi, C. Lokhorst, D. Berckmans</i>	
Harvest of Short Rotation Woody Crops with Small to Medium Size Forage Harvesters	4228
<i>Philippe Savoie, Pierre Luc Hébert, François-Simon Robert</i>	
Effects of Silage Pretreatment on the Anaerobic Digestion of Different Parts of Water Hyacinth	4242
<i>Yihua Xia, Kuichuan Sheng, Rolf Kloss, Zhihao Chen, Ruiqing Zhou</i>	
Determining the Particle Size Range of Organomineral Fertilisers Based on the Spreading Characteristics of the Material	4251
<i>D. L. Antille, L. Gallar-Redondo, R. J. Godwin</i>	
Uncertainty, Calibration and Validation of the Mississippi Irrigation Scheduling Tool Model	4269
<i>R. Prabhu, N. Lee, M. C. Wadsworth, G. F. Sassenrath, A. M. Schmidt, J. Crumpton, B. Rice, H. Van Riessen, R. Thornton, J. Pote, C. Wax</i>	
An Application of Soft Sets in Weed Identification	4279
<i>Pan Li, Dongjian He, Yongliang Qiao, Chenghai Yang</i>	
Reliability Analysis of the Sluice Gate by the Tidal Fluctuation	4289
<i>Hyuman Lee, Jeongjae Lee</i>	
An Investigation Into the Efficacy of Ozone for Inactivation of Microalgae Cells in Photobioreactors	4294
<i>Rachel M. Clarke, Patrick J. Solan, Brijesh. K. Tiwari, Colm P. O'Donnell, Thomas P. Curran</i>	
Application of Information Technology for Precision Agriculture	4304
<i>Xiaoyong Liu, Xuelian Li</i>	
Development and Delivery of Educational Tools for Irrigation Water Management and On-Farm Implementation of the Mississippi Irrigation Scheduling Tool (MIST)	4310
<i>A. M. Schmidt, G. F. Sassenrath, J. Crumpton, J. Q. Corbitt, B. Rice, H. Van Riessen, R. Thornton, R. Prabhu, J. Pote, C. Wax, M. L. Tagert</i>	
Assessment of Sprinkler Efficiency on Ammonia Removal in a Commercial Broiler Facility	4316
<i>David Wood, Bill Van Heyst</i>	
Evaluation of Calcium Ammonium Nitrate and Urea-based Fertilisers Applied to Grassland in Ireland	4329
<i>D. L. Antille, N. J. Hoekstra, M. Ernfors, K. Richards, S. T. J. Lalor</i>	

Volume 6

Geared Rollers Evaluation of Roselle Harvester	4353
<i>Edilberto S. Poblano, Federico F. Hahn, Javier Hernández</i>	
Driving Force and Factors Influencing Changes for Farmers' Irrigation Methods Based on an Empirical Analysis in Shaanxi Province	4360
<i>Yuxiang Huang, Wenting Han, Qing Lei, Yachao Ji, Peng Gao</i>	
Emissions of Atmospheric Pollutants from a Combined Commercial Dairy Barn	4371
<i>Darius Mali, Bill Van Heyst, Claudia Wagner-Riddle</i>	
Development of a Bivariate Mathematical Model to Characterize Simultaneously the Dose-time-responses of Pro-oxidant Agents	4387
<i>Thomas P. Curran, Miguel A. Prieto, Yvonne Anders, Jose A. Vázquez, Miguel A. Murado</i>	
Equilibrium Moisture Content of Triticale Seed	4397
<i>Mahmoud K. Khedher Agha, Won Suk Lee, Ray A. Bucklin, Arthur A. Teixeira, Ann R. Blount</i>	
Greywater Treatment System Modeling: An Approach Using Simulated Greywater	4403
<i>Shashi Kant, Fouad H. Jaber, R. Karthikeyan</i>	
The Effect of Air Quality Parameters on Poultry Broiler Performance	4408
<i>Gerard Corkery, Shane Ward, Phil Hemmingway</i>	
Mobile App for Tractor Rollover Detection and Emergency Notification	4416
<i>Bo Liu, A. Bulent Koc</i>	
Main Gases Within a Poultry Facility Heated by a Furnace	4425
<i>W. P. M. Ferreira, C. F. Souza, K. R. A. Inoue, F. F. G. Dorileo Leite, R. P. Lopes, I. F. F. Tinôco</i>	
Hand-Arm Vibration Measurements and Analysis Using Smartphones	4432
<i>A. Bulent Koc, Bo Liu</i>	
Case Study: Occasional Excessive Ammonia Emissions Following Dairy Manure Application to Land: Causes, Impacts, and Management Recommendations	4441
<i>Seungo Kim, Michael Jahne, Shane Rogers, Stefan Grimberg, Thomas Holsen</i>	
Orange Root System Distribution Under Controlled Deficit Irrigation	4448
<i>Marcos A. F. Lima, Regina C. M. Pires, André L. B. O. Silva, Augusto Y. P. Ohashi, José A. Quaggio</i>	
Methodology for Determination of Body Mass Gain of Broilers in Commercial Aviaries Via Digital Image Analysis	4456
<i>Cecília De Fátima Souza, Cristina Akemi Mogami, Ilda De Fátima Ferreira Tinôco, Francisco De Assis Carvalho Pinto, Keles Regina Antony Inoue, Holmer Savastano Júnior</i>	
Xylitol Production in Aerated Free- and Immobilized-cell Systems	4472
<i>M. Soleimani, L. Tabil, S. Panigrahi</i>	
Catch Can Testing of a Variable Rate Irrigation System and Evaluation Using a Time Varying Densogram	4480
<i>Charles Hillyer, Chad Higgins, Jason Kelly</i>	

Utilizing Wavelet Transforms and the Mann-Kendall Test to Assess Trends in Surface Air Temperature over Southern Ontario and Québec	4487
<i>D. Nalley, J. Adamowski, B. Khalil, B. Ozga-Zielinski</i>	
A SCM Programmed Suspension Weighing Lysimeter for Evapotranspiration Measurement of Pot Planted Crops	4503
<i>Wenting Han, Chao Zhang, Junjie Guo, Qiao Jun, Pute Wu</i>	
Development and Evaluation of A Wireless Sensor Network Monitoring System in Various Agricultural Environments.....	4511
<i>Wenting Han, Bingqin Zhu, Ning Wang, Jinghui Xu</i>	
Teaching Precision Agriculture Technology with Modified Diesel Golf Cart.....	4525
<i>Hunter F. Massey, Kendall R. Kirk</i>	
Investigation of Bluetooth Communications for Low-Power Embedded Sensor Networks in Agriculture.....	4534
<i>Andrew D. Balmos, Alex W. Layton, Aaron Ault, James V. Krogmeier, Dennis R. Buckmaster</i>	
A Technical Review on Safety in On-Farm Biomass Production and Storage Systems: Status and Industry Needs.....	4548
<i>Aaron M. Yoder, Dennis J. Murphy, Abraham F. Dehart</i>	
Design, Performance Prediction, and Validation of a Seed Orienting Corn Planter	4560
<i>Adrian A. Koller, Randy K. Taylor, Paul R. Weckler, Michael D. Buser, William R. Raun</i>	
Food Waste Composting Nitrous Oxide As GHG Emission	4578
<i>Subhash Paul, Brajesh Dubey</i>	
Experienced Air Quality and Symptoms in Persons Working with Dairy Cows and Cattle.....	4588
<i>Sven Nimmermark</i>	
Identification of High Accident Locations involving Farm Equipment on Public Roads and Similarities Among Those Locations	4596
<i>Harlin Wilkin, Sandy Mehlhorn</i>	
A Rotary Test Fixture for Steady-State Position Error Modeling.....	4605
<i>Michael P. Sama, Timothy S. Stombaugh</i>	
Comparison of Three Soil Erosion Control Treatments	4611
<i>Sandy Mehlhorn, Eatedal Alqusaireen</i>	
Watershed Delineation in the Field: A New Approach for Mobile Applications Using LiDAR Elevation Data.....	4620
<i>Samuel Noel, Aaron Ault, Dennis Buckmaster, Indrajeet Chaubey, Bernard Engel, Jane Frankenberger, James Krogmeier, Dennis Flanagan</i>	
Measurement Accuracy of a Multiplexed Portable FTIR – Surface Chamber System for Estimating Gas Emissions	4634
<i>Pakorn Sutitarnnontr, Enzhu Hu, Rhonda Miller, Markus Tuller, Scott B. Jones</i>	
Light in a Photobioreactor.....	4646
<i>Anand Rajendran, Gary A. Anderson, Xingzhong Yan, Stephen Gent, Jayasurya Vijayakumar</i>	
Application of Image Based Filtering to Improve the Performance of an Automated Lameness Detection System for Dairy Cows.....	4660
<i>Carlos E. B. Romanini, Claudia Bahr, Stefano Viazzi, Tom Van Hertem, Andres Schlageter-Tello, Ilan Halachmi, Kees Lokhorst, Daniel Berckmans</i>	
Evaluation of Pulse Width Modulation Sprays for Spray Quality	4669
<i>John P. Lang</i>	
Fluid Dynamics of a Solid Set Canopy Spray Delivery System for Orchard Applications.....	4677
<i>A. Sharda, M. Karkee, Q. Zhang</i>	
Effectiveness of an Innovative Air Cleaning System for Reducing Ammonia, Dust and Odor Emissions from Swine Barns	4687
<i>B. Predicala, A. Alvarado, M. Girard, M. Belzile, S. Lemay, J. Feddes</i>	
Evaluation of the Effect of Combined Storage Techniques on the Preservation of Industrial Sugars from Sugar Beets for Bioproducts	4695
<i>Juan M. Vargas-Ramirez, Darrin M. Haagensohn, Dennis P. Wiesenborn</i>	
Calculation of Biomass Capacity of Algae Based on Their Elemental Composition	4709
<i>Jayasurya Vijayakumar, Gary Anderson, Stephan Gent, Anand Rajendran</i>	
The Rotating Photo-Bioreactor as a Method for Removing Soluble Nutrients from Waters.....	4720
<i>Dennis A. Burke</i>	
Alternatives for Animal Drinking and Barn Cleaning to Reduce Water Use in Swine Production Operations	4730
<i>B. Predicala, A. Alvarado, Y. Jin</i>	
Evaluating the Soil Vulnerability Index and Conductivity Claypan Index for Claypan Soils in Missouri.....	4740
<i>Robert Chan, Claire Baffaut, Allen Thompson, John Sadler</i>	
Evaluating the Effects of Pasteurization Temperature and Treatment Duration on Pathogen Inactivation in Separated Liquid Dairy Manure	4754
<i>Elizabeth Collins, Jactone Arogo, Leigh-Anne Krometis, Sasha Howes</i>	
The Potential Causes of Manure Pit Foaming in Pig Finishing Barns	4764
<i>Larry Jacobson, Bo Hu, Mi Yan, Neslihan Akdeniz, Chuck Clanton</i>	
Assessment of Occupational Exposure Risk of Workers to Dust, Gases and Noise in Swine Grow-finish Facilities.....	4774
<i>B. Predicala, A. Alvarado</i>	
NPS Pollution Analysis in Groundwater and Streams of Rural Watersheds in Western and Southeastern Pampas, Argentina.....	4779
<i>G. Vazquez-Amabile, A. P. Ricca, D. Rojas, D. Cristos, M. L. Ortiz-De-Zarate, N. Bosch, D. Pons, A. Rodriguez-Vagaría, F. J. Gaspari, M. V. Feler, P. A. Mercuri, E. Flamenco, M. F. Feiguin</i>	
The Impact of Air Flow Rate on Photobioreactor Sparger/Diffuser Bubble Size(s) and Distribution.....	4792
<i>Anil R. Kommareddy, G. A. Anderson, S. P. Gent, G. S. Bari</i>	

Numerical Simulation of Cutting Tool and Biomass Interactions During Preprocessing	4805
<i>Bo Liu, A. Bulent Koc</i>	
Performance Evaluation of a Center Pivot Variable Rate Irrigation System	4813
<i>Arndt Gossel, Allen Thompson, Kenneth Sudduth, Joseph Henggeler</i>	
The Ammonium Bicarbonate Fiber Expansion (ABFX) Pretreatment Process	4831
<i>Dennis A. Burke</i>	
A Study on the Economic Analysis of Wastewater Reclamation and Reuse Systems for Agriculture using a System Dynamics Approach	4838
<i>Hanseok Jeong, Kyo Suh, Hakkwan Kim, Seungwoo Park, Haedo Kim, Chounghyun Seong, Taeil Jang</i>	
Study of the Incidence of Solar Radiation in Mountainous Regions of Coffee Production Using GIS.....	4847
<i>W. P. M. Ferreira, C. F. Souza, E. I. Fernandez Filho, M. F. Ribeiro, H. Savastano Júnior</i>	
Automatic Inspection System for Processing Tomatoes	4853
<i>David C. Slaughter, Jacob Isaacs, Melanie Leocadio, Henry Chang, Tyler Anderson, Derek Ng, Eddie Orgon</i>	
Evaluation of the Variable Rate Fertilization in Winter Crops for Shallow Soils Using Soil Depth Maps and Crop Simulation Models in Southeastern Pampas, Argentina.....	4860
<i>G. Vazquez-Amabile, M. Gonzalo, M. Pella, S. Galbusera, Gustavo Cueto</i>	
Selecting Target Populations for ROPS Retrofit Programs in Pennsylvania and Vermont.....	4872
<i>A. M. Yoder, J. A. Sorensen, F. Foster, M. Myers, D. J. Murphy, G. Cook, J. May, P. Jenkins</i>	
Automatic Dosing of Fertigation Solution Tanks	4889
<i>Federico F. Hahn, Fernando González</i>	
Single Row vs. Twin Row Digging Losses for Two Virginia Type Peanut Varieties	4895
<i>Kendall R. Kirk, Hunter F. Massey, W. Scott Monfort, James Thomas, Basil Jordan, W. Brett Schmidt</i>	
Development and Testing of an Impact Plate Yield Monitor for Peanuts	4903
<i>Jacob B. Fravel, Kendall R. Kirk, W. Scott Monfort, James S. Thomas, William G. Henderson, Hunter F. Massey, John P. Chastain</i>	
Flume Experiments to Determine the Erodibility of Gravel Streambank Soils	4913
<i>David T. Criswell, Garey A. Fox, Abdul-Sahib T. Al-Madhhachi, Ron Miller, Erin Daly</i>	
Evaluating Cover Crop Evapotranspiration using Field Measurements and Remote Sensing Techniques.....	4924
<i>Christopher H. Hay, Brett Hankerson, Jeppe Kjaersgaard</i>	
Spatial Characteristics of Future Precipitation Distribution in Korea – Bias Corrected by a Quantile Mapping Method	4933
<i>Moon-Seong Kang, Inhong Song, Ji-Hoon Park, Sang-Min Kim, Min-Won Jang</i>	
Chemico-physical Characteristics of Livestock Compost in Korea.....	4937
<i>Inhong Song, Ji Hyun An, Moon Seong Kang, Jeong Ryeol Jang</i>	
A Method for Fuel Efficiency Classification of Agricultural Tractors.....	4942
<i>Changseop Shin, Kyeong U. Kim</i>	
Determine Soil Water Content Using Dielectric Dispersion Frequency	4953
<i>Jinghui Xu, Wenting Han, Sally D. Logsdon, Robert Horton</i>	
Application of Isothermal Calorimetry to the Study of Phosphorus Sorption Onto Soils in a Flow-through System	4963
<i>C. J. Penn, D. M. Hereen, G. A. Fox</i>	
Pilot-Scale Field Study for Ammonia Removal from Lagoon Biogas Using an Acid Wet Scrubber	4977
<i>Hongjian Lin, Xiao Wu, Curtis Miller, Jun Zhu, Lara Jane Hadlocon, Roderick Manuzon, Lingying Zhao</i>	
Impact of Measurement Scale on Infiltration and Phosphorus Leaching in Ozark Floodplains.....	4991
<i>Derek M. Heeren, Garey A. Fox, Daniel E. Storm, Brian E. Haggard, Chad J. Penn, Todd Halihan</i>	
Effects of Biological Pretreatment on Pyrolysis Behaviors of Corn Stalk by TG-FTIR Technique	5007
<i>Tipeng Wang, Changqing Dong, Qiang Lu, Wentao Jia, Xiaohui Yan, Zhihuai Mao</i>	
Effects of Microorganism and Pests on Thermal Properties of Grain	5013
<i>Jun Yin, Zhongjie Zhang, Wenfu Wu, Tipeng Wang, Zidan Wu, Zhihuai Mao</i>	
Research on Application of Wireless Detecting Networks in Aquaculture.....	5019
<i>Xingqiao Liu, Qinfeng Chong, Juan Huan</i>	
Developing a Model Irrigation Dissemination Program for Homeowners	5025
<i>Charles Swanson, Guy Fipps</i>	
Can ET-Based Irrigation Controllers Meet Texas Landscape Needs?	5032
<i>Charles L. Swanson, Guy Fipps</i>	
Effect of Mechanical Treatments on Creep Behavior of Potato Tubers	5051
<i>Ahmed Mustafa Rady, Soliman N. Soliman</i>	
Evaluation of Surface Effect, On Mechanical Damage of Potato Tubers Using Different Methods	5074
<i>Ahmed Mustafa Rady, Soliman N. Soliman</i>	
Nonisothermal Crystallization Behavior of Biocomposites from Poly(lactic acid) and Bamboo Fiber	5098
<i>Shaoping Qian, Hailiang Mao, Kuichuan Sheng, Yifan Luo, Jun Lu</i>	
Research on Thermal Characteristics of Whey Powder, Milk Replacer and Lactose.....	5108
<i>Lin Zhao, Hongying Wang, Dandan Kong, Rui Gao, Jie Yang</i>	
Discrimination Among Ginsengs of Different Growing Years Based on Electronic Nose	5127
<i>Shaoqing Cui, Lin Cao, Jun Wang</i>	
Pretreatment and Properties of Ultrastructural Straw Used for Biological Hydrogen Production	5135
<i>Quanguo Zhang, Zhiping Zhang, Huan Zhang, Yanyan Jing, Qinglin Wu, Guangyin Xu, Jianzhi Yue, Youzhou Jiao, Yi Wang</i>	
Cutting Component Development for a Lettuce Harvester.....	5147
<i>Nang Nguyen Van, Suguru Yamane</i>	

Watershed Diagnostics for Improved Adoption of Management Practices: Integrating Biophysical and Social Factors Across Urban and Agricultural Landscapes	5155
<i>Paul Leisnham, Hubert Montas, Adel Shirmohammadi, Victoria Chanse, David Lansing, Amanda Rockler, Thomas Hutson, John McCoy, Lee Cain, Sacoby Wilson, Douglas Lipton, Kaye Brubaker, Yan Wang</i>	
The Economical A2 Digester – Anaerobic Digestion Followed by Composting in the Same Vessel	5169
<i>Conly Hansen, Russell V. Davis, Sharon Baker Johnson</i>	
Hyperspectral Imaging-based Classification and Wavebands Selection for Internal Defect Detection of Pickling Cucumbers	5187
<i>Haiyan Cen, Renfu Lu, Diwan P. Ariana, Fernando Mendoza</i>	
Integrating NIR Reflectance, Vis/NIR Interactance, and Hyperspectral Imaging Systems Data to Predict Physiological Status of Potato Tubers	5202
<i>Ahmed Mustafa Rady, Daniel Guyer</i>	
Soft Sensor Modeling of LS-SVM based on Bayesian Criteria for Marine Protease Fermentation Process	5217
<i>Yonghong Huang, Xinlei Song</i>	
Rapid Direct Testing of the Hydraulic Performance of Earthen Manure Impoundments	5225
<i>Cody Kurzer, Mary Siegan, Richard Burns, William Reck, Michael Olson</i>	
Acceptable Value of Microirrigation System Uniformity	5232
<i>Jian Wang, Delan Zhu, Lin Zhang</i>	
Review of Agricultural Engineering Construction Standardization Management in China	5244
<i>Yanqin Shi, Shujun Li, Yingkuan Wang</i>	
Author Index	