

2017 Superior Paper Award Winners Presented in 2018

The articles published by ASABE in its three peer-reviewed journals during 2017 are eligible for 2018 Superior Paper Awards. Each Technical Community selects up to 5% of the papers published by their community for Paper Awards based on the articles timeliness, fundamental value, originality, and benefits to society, as well as for the quality of writing. Winning Paper Award authors are presented with a certificate at the Annual International Meeting.

ES - Energy Systems

Effective Use of Dairy Manure Mixed with Sand Bedding for Gasification

H. Nam, A. L. Maglinao, S. C. Capareda

Published in Transactions of the ASABE 60(1): 5-16 (doi: 10.13031/trans.12000). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Hyungseok Nam, ASABE Member, Postdoctoral Research Fellow, Amado L. Maglinao, Associate Research Scientist, and Sergio C. Capareda, ASABE Member, Professor, Department of Biological and Agricultural Engineering, Texas A&M University, College Station, Texas. Corresponding author: Sergio C. Capareda, 303D Scoates Hall, MS 2117, Texas A&M University, College Station, TX 77843; phone: 979-458-3028; e-mail: scapareda@tamu.edu.

ESH - Ergonomics, Safety, & Health

Evaluation of Low-Cost Hydrogen Sulfide Monitors for Use in Livestock Production

J. M. Beswick-Honn, T. M. Peters, T. R. Anthony

Published in Journal of Agricultural Safety and Health 23(4): 265-279 (doi: 10.13031/jash.12530). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Jessica M. Beswick-Honn, Research Assistant, Thomas M. Peters, Professor, and T. Renée Anthony, ASABE Member, Associate Professor, Department of Occupational and Environmental Health, University of Iowa, Iowa City, Iowa. Corresponding author: T. Renée Anthony, CPHB, 145 N. Riverside Drive, Iowa City, IA 52246; phone: 319-335-4429; e-mail: renee-anthony@uiowa.edu.

ITSC – Information Technology, Sensors, & Control Systems

Identification and Counting of Soybean Aphids from Digital Images Using Shape Classification

S. Sunoj, S. Sivarajan, M. Maharlooei, S. G. Bajwa, J. P. Harmon, J. Nowatzki, C. Igathinathane

Published in Transactions of the ASABE 60(5): 1467-1477 (doi: 10.13031/trans.12105). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Sunoj Shajahan, ASABE Member, Graduate Student, Department of Agricultural and Biosystems Engineering, North Dakota State University, Fargo, North Dakota; Saravanan Sivarajan, ASABE Member, Postdoctoral Fellow, Department of Agricultural and Biosystems Engineering, North Dakota State University, Fargo, North Dakota, currently Associate Professor, Department of Agricultural Engineering, Sri Shakthi Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India; Mohammadmehdi Maharlooei, ASABE Member, Assistant Professor, Department of Mechanical Engineering of Biosystems, Shahid Bahonar University of Kerman, Kerman, Iran; Sreekala G. Bajwa, ASABE Fellow, Professor, Department of Agricultural and Biosystems Engineering, Jason P. Harmon, Assistant Professor, Department of Entomology, John Nowatzki, ASABE Member, Extension Specialist, Department of Agricultural and Biosystems Engineering, and Igathinathane Cannayen, ASABE Member, Associate Professor, Department of Agricultural and Biosystems Engineering, North Dakota State University, Fargo, North Dakota. Corresponding author: Sunoj Shajahan, 1221 Albrecht Blvd., North Dakota State University, Fargo, ND 58102; phone: 701-667-3051; e-mail: sunoj.shajahan@ndsu.edu.

Detection of Internally Bruised Blueberries Using Hyperspectral Transmittance Imaging

M. Zhang, C. Li, F. Takeda, F. Yang

Published in Transactions of the ASABE 60(5): 1489-1502 (doi: 10.13031/trans.12197). 2017 American Society of Agricultural and Biological Engineers.

The authors are Mengyun Zhang, ASABE Member, Doctoral Student, College of Mechanical and Electronic Engineering, Northwest Agriculture and Forestry University, Yangling, China; Changying Li, ASABE Member, Professor, Bio-Sensing and Instrumentation Laboratory, College of Engineering, University of Georgia, Athens, Georgia; Fumiomi Takeda, Research Horticulturist, USDA-ARS Appalachian Fruit Research Station, Kearneysville, West Virginia; Fuzeng Yang, Professor, College of Mechanical and Electronic Engineering, Northwest Agriculture and Forestry University, Yangling, China. Corresponding authors: Changying Li, 712 F Boyd Graduate Studies Building, University of Georgia, Athens, GA 30602 (phone: 706-542-4696; e-mail: cyli@uga.edu), and Fuzeng Yang, P.O. Box 16, Northwest Agriculture and Forestry University, 22 Xinong Road, Yangling, Shaanxi 712100, China (phone: +86-029-87092913; e-mail: yfz0701@163.com).

MS – Machinery Systems

Profile Soil Property Estimation Using a VIS-NIR-EC-Force Probe

Y. Cho, K. A. Sudduth, S. T. Drummond

Published in Transactions of the ASABE 60(3): 683-692 (doi: 10.13031/trans.12049). 2017 American Society of Agricultural and Biological Engineers.

The authors are Yongjin Cho, ASABE Member, Visiting Postdoctoral Scholar, Kenneth A. Sudduth, ASABE Fellow, Agricultural Engineer, and Scott T. Drummond, Information Technology Specialist, USDA-ARS Cropping Systems and Water Quality Research Unit, University of Missouri, Columbia, Missouri. Corresponding author: Kenneth A. Sudduth, 269 Agricultural Engineering Building, University of Missouri, Columbia, MO 65211; phone: 573-882-1114, ext. 303; e-mail: Ken. Sudduth@ars.usda.gov.

Spray Tip Configurations with Pulse-Width Modulation for Glufosinate-Ammonium Deposits in Palmer Amaranth (*Amaranthus palmeri*)

A. R. Womac, G. Melnichenko, L. Steckel, G. Montgomery, J. Reeves, R. M. Hayes

Published in Transactions of the ASABE 60(4): 1123-1136 (doi: 10.13031/trans.12137). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Alvin Ray Womac, ASABE Member, Professor, and Galina Melnichenko, Research Associate, Department of Biosystems Engineering and Soil Science; Larry Steckel, Professor, and Garrett Montgomery, Graduate Research Assistant, Department of Plant Sciences; Julie Reeves, Research Associate, and Robert M. Hayes, Research Center Director, West Tennessee Research and Education Center, and Professor, Department of Plant Sciences, University of Tennessee, Knoxville, Tennessee. Corresponding author: A. R. Womac, 2506 E.J. Chapman Drive, University of Tennessee, Knoxville, TN 37996; phone: 865-974-7104; e-mail: awomac@utk.edu.

Influence of a Young *Pinus radiata* Canopy on Aerial Spray Drift

B. Richardson, T. Strand, H. W. Thistle, A. Hiscox, M. O. Kimberley, W. C. Schou

Published in Transactions of the ASABE 60(6): 1851-1861 (doi: 10.13031/trans.12497). 2017 American Society of Agricultural and Biological Engineers.

The authors are Brian Richardson, ASABE Member, Principal Scientist, and Tara Strand, Research Leader, Scion (New Zealand Forest Research Institute), Rotorua, New Zealand; Harold W. Thistle, ASABE Member, Program Manager, USDA Forest Service, Morgantown, West Virginia; April Hiscox, ASABE Member, Associate Professor, Department of Geography, University of South Carolina, Columbia, South Carolina; Mark O. Kimberley, Senior Scientist, and Wayne C. Schou, Scientist, Scion (New Zealand Forest Research Institute), Rotorua, New Zealand. Corresponding author: Brian Richardson, Scion, 49 Sala St., Private Bag 3020, Rotorua, New Zealand; phone: +64-7-343-5516; e-mail: brian.richardson@scionresearch.com.

NRES – Natural Resources & Environmental Systems

A Generic Pest Submodel for Use in Integrated Assessment Models

L. Rasche, R. A. J. Taylor

Published in Transactions of the ASABE 60(1): 147-158 (doi: 10.13031/trans.11931). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Livia Rasche, Research Associate, Research Unit Sustainability and Global Change, University of Hamburg, Hamburg, Germany, and Robin A. J. Taylor, Senior Research Scientist, Blackland Research Center, Texas A&M University, Temple, Texas. Corresponding author: Livia Rasche, Universität Hamburg, Grindelberg 5, 20144 Hamburg, Germany; phone: +49-40-42838-7243; e-mail: livia.rasche@uni-hamburg.de.

Cotton Irrigation Scheduling Using a Crop Growth Model and FAO-56 Methods: Field and Simulation Studies

K. R. Thorp, D. J. Hunsaker, K. F. Bronson, P. Andrade-Sanchez, E. M. Barnes

Published in Transactions of the ASABE 60(6): 2023-2039 (doi: 10.13031/trans.12323). 2017 American Society of Agricultural and Biological Engineers.

The authors are Kelly R. Thorp, ASABE Member, Research Agricultural Engineer, Douglas J. Hunsaker, ASABE Member, Research Agricultural Engineer, and Kevin F. Bronson, Research Soil Scientist, USDA-ARS Arid Land Agricultural Research Center, Maricopa, Arizona; Pedro Andrade-Sanchez, ASABE Member, Associate Professor, Maricopa Agricultural Center, University of Arizona, Maricopa, Arizona; Edward M. Barnes, ASABE Member, Agricultural Research Director, Cotton Incorporated, Cary, North Carolina. Corresponding author: Kelly R. Thorp, USDA-ARS, 21881 N. Cardon Lane, Maricopa, AZ 85138; phone: 520-316-6375; e-mail: kelly.thorp@ars.usda.gov.

Crop and Location Specific Agricultural Drought Quantification: Part I. Method Development

R. L. McDaniel, C. Munster, J. T. Cothren

Published in Transactions of the ASABE 60(3): 721-728 (doi: 10.13031/trans.11649). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Rachel L. McDaniel, ASABE Member, Assistant Professor, Department of Agricultural and Biosystems Engineering, South Dakota State University, Brookings, South Dakota; Clyde Munster, ASABE Member, Professor, Department of Biological and Agricultural Engineering, Texas A&M University, College Station, Texas; J. Tom Cothren, Professor, Department of Soil and Crop Science, Texas A&M University, College Station, Texas. Corresponding author: Rachel McDaniel, Box 2120, South Dakota State University, Brookings, SD 57007; phone: 605-688-5669; e-mail: rachel.mcdaniel@sdstate.edu.

Geochemical Evolution and Leachate Transport Beneath Two Carcass Burial Sites: A Field Investigation

D. L. Pratt, T. A. Fonstad

Published in Transactions of the ASABE 60(6): 1895-1911 (doi: 10.13031/trans.12476). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Dyan L Pratt, ASABE Member, Research Engineer and Graduate Student, and Terrance A. Fonstad, Associate Professor, Department of Civil, Geological, and Environmental Engineering, University of Saskatchewan, Saskatoon, Canada. Corresponding author: Dyan Pratt, 57 Campus Drive, University of Saskatchewan, Saskatoon, SK, Canada S7N 5A9; phone: 306-966-2335; e-mail: dyan.pratt@usask.ca.

Coefficients for Quantifying Subsurface Drainage Rates

R. Wayne Skaggs

Published in Applied Engineering in Agriculture 33(6): 793-799 (doi: 10.13031/aea.12302). Copyright 2017 American Society of Agricultural and Biological Engineers.

The author is R. Wayne Skaggs, ASABE Fellow, William Neal Reynolds Distinguished University Professor Emeritus, Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, NC; phone: 919-306-2645; email: skaggs@ncsu.edu.

PAFS - Plant, Animal, & Facility Systems

Evaluation of Conditions during Weaned Pig Transport

J. D. Harmon, S. J. Hoff, T. J. Baas, Y. Zhao, H. Xin, L. R. Follett

Published in Applied Engineering in Agriculture 33(6): 901-912 (doi: 10.13031/aea.12367). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Jay D. Harmon, ASABE Fellow, Professor, Steven J. Hoff, ASABE Fellow, Professor, Iowa State University, Ames, Iowa; Thomas J. Baas, Professor, Animal Science Department, Iowa State University, Ames, Iowa; Yang Zhao, ASABE Member, Assistant Professor, Mississippi State University, Mississippi State, Mississippi; Hongwei Xin, ASABE Fellow, Distinguished and Endowed Professor, Agricultural and Biosystems Engineering Department, Iowa State University, Ames, Iowa; and Lendie R. Follett, Assistant Professor, Department of Data Analytics, Drake University, Des Moines, Iowa. Corresponding author: Jay D. Harmon, 4333 Elings Hall, Ames, IA 50011; phone: 515-294-0554; e-mail: jharmon@iastate.edu.

A UHF RFID System for Studying Individual Feeding and Nesting Behaviors of Group-Housed Laying Hens

L. Li, Y. Zhao, J. Oliveira, W. Verhoijssen, K. Liu, H. Xin

Published in Transactions of the ASABE 60(4): 1337-1347 (doi: 10.13031/trans.12202). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Lihua Li, ASABE Member, Associate Professor, College of Mechanical and Electrical Engineering, Agricultural University of Hebei, Baoding, Hebei, China (formerly Visiting Professor, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, Iowa); Yang Zhao, ASABE Member, Assistant Professor, Department of Agricultural and Biological Engineering, Mississippi State University, Mississippi State, Mississippi (formerly Assistant Scientist, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, Iowa); Jofran Oliveira, ASABE Member, Graduate Research Assistant, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, Iowa, and Assistant Professor, Department of Agricultural and Environmental Engineering, Federal University of Mato Grosso, Brazil; Wilco Verhoijssen, Area Manager, VDL Agrotech, Eindhoven, the Netherlands (formerly Visiting Graduate Research Assistant, Department of Agricultural and Biological Engineering, Iowa State University, Ames, Iowa); Kai Liu, ASABE Member, Graduate Research Assistant, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, Iowa; Hongwei Xin, ASABE Fellow, Assistant Dean for Research, Distinguished and Endowed Professor, and Director of Egg Industry Center, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, Iowa. Corresponding author: Hongwei Xin, 1202 NSRIC, Iowa State University, Ames, IA 50011-3310; phone: 515-294-4240; e-mail: hxin@iastate.edu.

PRS- -Processing Systems

Differences in Kernel Shape, Size, and Density between Healthy Kernels and Mold Discolored Kernels and their Relationship to Reduction in Aflatoxin Levels in a Sample of Shelled Corn

H. Shi, R. L. Strohshine, K. Ileleji

Published in Applied Engineering in Agriculture 33(3): 421-431 (doi: 10.13031/aea.12037). Copyright 2017 American Society of Agricultural and Biological Engineers.

The authors are Hu Shi, Graduate Student, Richard L. Strohshine, Professor, Klein Ileleji, Associate Professor & Extension Engineer, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana. Corresponding author: Richard L. Strohshine, 225 S University Street, West Lafayette, IN 47907-2093; phone: 765-494-1192; email: strosh@ecn.purdue.edu.

Development of a Multispectral Structured Illumination Reflectance Imaging (SIRI) System and Its Application to Bruise Detection of Apples

Y. Lu, R. Lu

Published in Transactions of the ASABE 60(4): 1379-1389 (doi: 10.13031/trans.12158). 2017 American Society of Agricultural and Biological Engineers.

The authors are Yuzhen Lu, ASABE Member, Graduate Student, Department of Biosystems and Agricultural Engineering, Michigan State University, East Lansing, Michigan; Renfu Lu, ASABE Fellow, Research Leader, USDA-ARS Sugarbeet and Bean Research Unit, Michigan State University, East Lansing, Michigan. Corresponding author: Renfu Lu, Room 224, 524 S. Shaw Lane, Michigan State University, East Lansing, MI 48824; phone: 517-432-8062; e-mail: Renfu.lu@ars.usda.gov.

6/6/18