

2021 Superior Paper Award Winners Presented in 2022

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ES – Energy Systems

[Ensilability and Nutritive Value of Sweet Sorghum and Sweet Pearl Millet Bagasse as Affected by Different Methods of Carbohydrate Extraction for Eventual Ethanol Production](#)

Saïed, Noura; Khelifi, Mohamed; Bertrand, Annick; Tremblay, Gaëtan; Aider, Mohammed

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ESH - Ergonomics, Safety, & Health

[Assessing Nonresponse Bias in Farm Injury Surveillance Data](#)

Cheryl L. Beseler, Risto H. Rautiainen

Published in *Journal of Agricultural Safety and Health* 27(4): 215-227 (doi: 10.13031/jash.14554).

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ITSC – Information Technology, Sensors, & Control System

[A Dynamic Model for the Relationship between Rice Growth and Meteorology, Water, Nitrogen, and Canopy Structure](#)

Kenichi Tatsumi

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MISIRoot: A Robotic, Minimally Invasive, *in Situ* Imaging System for Plant Root Phenotyping

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Evaluation of Soil Moisture Sensing Technologies in Silt Loam and Loamy Sand Soils: Assessment of Performance, Temperature Sensitivity, and Site- and Sensor-Specific Calibration Functions

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MS – Machinery Systems

Modeling Soil Forces on a Rotary Tine Tool in Artificial Soil

Safal Kshetri, Brian L. Steward, Mehari Z. Tekeste

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Development of a Small Electric Robot Boat for Mowing Aquatic Weeds

Yutaka Kaizu, Tetsuo Shimada, Yusuke Takahashi, Sho Igarashi, Hiroyuki Yamada, Kenichi Furuhashi, Kenji Imou

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Field Performance Evaluation of Pulse-Width Modulation and Pressure-Controlled, Fixed-Orifice Application Systems for Sensor-Based Nitrogen Applications

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Power-Saving Solutions for Pre-Compensated Load-Sensing Systems on Mobile Machines

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NRES – Natural Resources & Environmental Systems

Techno-Economic Analysis of Constant-Flow Woodchip Bioreactors

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[Development of a Land Suitability Framework for Sustainable Manure Utilization](#)

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[A 2020 Vision of Subsurface Drip Irrigation in the U.S.](#)

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PAFS - Plant, Animal, & Facility Systems

PRS - Processing Systems

[Validating the Glass Transition Hypothesis in Explaining Fissure Formation in Rough Rice Kernels During the Drying Process](#)

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Energy and Exergy Efficiencies of Fluidized and Fixed Bed Rice Drying

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