2020 AETC PLANNING COMMITTEE

Scott Frost, Chair
Mark Dilts
Rusty Unterzuber
Shane Williams
Ganesh Bora
Cale Boriack
Mahmood Ebadian
Brian Huenink
Karl Klotzbach
Brian Luck
Justin Noland
Doug Otto
Austin Roepke
Michael Sama
Jason Schuster
Andrew Theisen
Jessica Bell
Scott Cedarquist

THANK YOU!
Sunday, February 9
2:00PM-6:00PM  Registration Open
Location: Regency Ballroom South

Monday, February 10
7:00AM-5:00PM  Registration Open
Location: Regency Ballroom South

7:00AM-8:30PM  Committee Meetings—See page 14

8:00AM-11:00AM  Continuing Professional Development Sessions
COST: $50.00

**CPD1 – Industrial Bearing Primer for Agricultural Applications**
Instructor: **Tom Triola**, Timken Company, Principal Application Engineer, Canton, Ohio
Location: Park Suite

This interactive technical session will review the different industrial bearing types—ball, cylindrical, spherical and tapered and their basic design features. Following that will be information on the various housed units (pillow blocks) available that incorporate industrial bearings, bearing lubrication basics, seal considerations, bearing fits and mounting practices, and a sample bearing model for fatigue life analysis review. A discussion of bearing damage analysis modes will wrap up the 3-hour session.

**CPD2 – Concurrent Engineering and Design for Manufacturing and Assembly (DFMA®)**
Instructor: **Chris Tsai**, Boothroyd Dewhurst, Inc., Director, DFMA® Implementation Services, Wakefield, Rhode Island
Location: Kentucky Suite

Concurrent Engineering and Design for Manufacturing and Assembly (DFMA®) is a process (predominantly product development) that can significantly reduce costs, improve worker ergonomics and safety, and improve product quality and reliability. There are core principles that can be applied to any design effort to achieve these results. In addition to case studies there will also be information regarding software that can bring data and objectivity to your DFMA® efforts.
Monday, February 10

9:45AM-11:00AM    Student Focus Session
Re-Engineering a Career
Rusty Unterzuber, AETC Past Chair, Davenport, Iowa
Location: Gulfstream-Hialeah

This session will provide students and young professionals with observations, insights, and ideas for their consideration as they define and establish themselves and their careers.

This presentation is a lighthearted look at what really happens over a career in spite of all the planning and best of intentions. The lessons learned are applicable in any work environment and business area. That in itself is a lesson. A major revelation is that the technology or scientific knowledge you utilize eventually becomes secondary to how you organize and execute your work.

Topics will include:
- Lessons Learned & to Be Learned
- Relationships
- Mistakes or Just Poor Choices?
- Satisfaction vs Success
- Planning for Life

11:00AM-12:00PM    Welcome Ceremony
Welcome Ceremony with Student Poster Session & Competition
Location: Regency Ballroom South

Gather for a welcome address from the 2020 AETC Chair, Scott Frost. Then we’ll begin the undergraduate and graduate student poster session. Students will present their research or design projects in the form of a poster presentation during this session. Posters will be evaluated by industry and academic professionals to determine the winners. Through the financial support of the ASABE Initiative Fund, monetary award prizes will be distributed this year. Awards available are 1st Place: $250, 2nd Place: $100, 3rd Place: $50 for both graduate and undergraduate groups. Winners will be announced at the Tuesday Awards Luncheon.

Poster presentations
Graduate Student Category:

MONDAY, FEBRUARY 10

2a Tractor Instrumentation System for Characterizing Mixed Mode Tractor Power States - C. Liew, S. K. Pitla, R. A. Rohrer, J. D. Luck, R. M. Hoy, University of Nebraska-Lincoln, Nebraska

3a Development of a High-Throughput Soil Sampling System - Shawn T. O’Neal, Michael P. Sama, Michael D. Montross, Ole O. Wendroth, University of Kentucky, Kentucky

4a Seeding Rate, Planter Downforce and Cultivar Effect on Crop Emergence and Yield in Singulated and Hill-Drop Planted Cotton - S.S. Virk, W.M. Porter, J.L. Snider, J.R. Whitaker, University of Georgia, Georgia

5a Design and Optimization of a UAV for Agricultural Applications in Uganda - Kamulegeya Obed, Jobile Pius Lunda, Makerere University, Uganda

6a Study on Strength Analysis of Driving Shift Gears According to Plow Tillage of 78 kW Tractor in Korea - Taek-Jin Kim, Yong-Joo Kim, Chungnam National University, South Korea

7a Study on the Load Analysis of Agricultural Tractor According to Soil Condition - Nam-Gyu Lee, Yong-Joo Kim, Chungnam National University, South Korea

8a Strength analysis of 82 Kw class Tractor Transmission using Simulation Model - Seok-Pyo Moon, Yong-Joo Kim, Chungnam National University, South Korea

9a Analysis of SOC Level of LiFePO4 Batteries for Electric AWD Tractor using Simulation Model - Seung-Yun Baek, Chang-Hyun Choi, Yong-Joo Kim, Chungnam National University, South Korea

10a Development of the Pressure Control Algorithm for the Proportional Valve of a Rice Transplanter - Md Abu Ayub Siddique, Wan-Soo Kim, Taek-Jin Kim, Chang-Hyun Choi, Yong-Joo Kim, Chungnam National University, South Korea

11a Electric Power Considerations for Row-Crop Operations - Andrew Donesky - Santosh Pitla, CheeTown Liew, University of Nebraska-Lincoln, Nebraska

12a Development of Dynamics Simulation Model for Tractor Using Multi-Body Dynamics Software - Seung-Min Baek, Hyeon-Ho Jeon, Chang-Hyun Choi, Yong-Joo Kim, Chungnam National University, South Korea
MONDAY, FEBRUARY 10

Undergraduate Student Category:

1b  *Quarter Scale Tractor Driver Isolation System* - Alyssa Kelly, Lukas Banhidy, Collin O'Donnell, University of Kentucky, Kentucky

2b  *Development of an Electromechanical Clutch and Control System for the Wildcat Pulling Team* - Jordan McKinney, Thomas Ruggles, Christopher Sanders, University of Kentucky, Kentucky

3b  *Design and Fabrication of a Sorghum Threshing Machine* - Nakimuli Kimuli Naqiyyah, Makerere University, Uganda

12:00PM-1:30PM  Luncheon with Keynote Speaker

**Challenges and Opportunities in Agricultural Hemp Production**

*Dr. Bob Pearce*, Philip Morris Professor, Extension Tobacco Specialist, UK CAFE Hemp Program, College of Agriculture Food and Environment, University of Kentucky, Lexington

Location: Regency Ballroom North

Hemp has exploded onto the national agricultural scene following enactment of the 2018 Farm Bill. With the recent release of the USDA Interim Final Rule for hemp production, states are scrambling to put regulatory procedures in place. At least 47 states are expected to have a program to allow hemp production in 2020. Kentucky was one of the first states to conduct field research on hemp in the modern era, and has experienced many of the challenges that will be faced to make hemp a viable and valuable crop for U.S. farmers. Generally, there are three main product types and associated production systems which are being developed for hemp; 1) natural fiber, 2) grain and seed oil, and 3) floral production for extraction of essential oils or direct consumption. Each of these production systems have different challenges that will be discussed. One of the biggest challenges will be the development of locally adapted cultivars that consistently meet the federal definition of hemp with regards to THC concentrations. There are many opportunities and challenges for mechanization of hemp. The tough fibrous nature of the stems and stalks have proven to be a challenge for conventional forage and grain handling equipment. Mechanical solutions are also needed for efficient removal of the female flowers and buds from the stems and stalks for floral extract production. The industry is moving ahead quickly and systematic research and development are needed to support growers interested in this high-risk, potentially high-reward crop.
MONDAY, FEBRUARY 10

1:30-3:30pm  Tech Session #1 – Standards Update
Moderator: Scott Cedarquist
Location: Park Suite
This session will overview key standards development activities and regulations pertaining to agricultural equipment.

1:35pm  US Regulatory Issues Associated with Agricultural Equipment – Nick Tinkdall, Association of Equipment Manufacturers (AEM), Washington, DC

1:45pm  Canadian Technical Issues Management – Karl Klotzbach, CNH Industrial, Racine, Wisconsin

1:55pm  Update on Highly Autonomous Equipment Standardization – Todd Howatt, AGCO Corp, Jackson, Minnesota

2:05pm  Higher Voltage Agricultural Equipment – Rick Weires, John Deere, Asbury, Iowa

2:20pm  Hot Topics from the Outdoor Power Equipment Industry – Daniel Mustico, OPEI, Alexandria, Virginia

2:30pm  Updates on the Latest ISO Combine Standards – Mark Dilts, CNH Industrial, New Holland, Pennsylvania

2:45pm  Braking Standards Update – Bruce Hawkins, John Deere, Davenport, Iowa

3:45-5:15pm  Tech Session #2-Hydraulics 101 (part 1) – Fluid Fundamentals
Moderator: Shane Williams
Location: Park Suite
The lifeblood of all hydraulic systems and the most important component regardless of the functional intent of the system is the oil. The oil is what does the (dirty) work. Before diving deeper into the other physical components of hydraulic systems, it is necessary to first take some time to better understand the hydraulic oil itself and learn about what makes it unique and vital. Led by some of the leading experts in the hydraulic fluids industry, this session will focus on topics including hydraulic fluids commonly found in agricultural vehicles, industrial hydraulic fluids in the off-highway and agricultural sector, trends in the oil industry, controlling hydraulic oil contamination, and the basics of hydraulic filtration.

3:50pm  Fundamentals Introduction – Tractor Hydraulic Fluids – Philippe Dussault, Lubricant Technical Advisor, Exxon Mobil, Longueuil, Quebec, Canada

4:05pm  Industrial Hydraulic Fluids (Off Highway and Ag Sector) – James Hannon, Lubricant Technical Advisor, Exxon Mobil, Allentown, New Jersey
MONDAY, FEBRUARY 10

4:20pm *Industry Trends in Hydraulic Fluid* – *Helen Kilfoyle*, Equipment Builder Engineer, Exxon Mobil, Dewitt, Michigan

4:35pm *Contamination Control* – *Mike Galloway*, Equipment Builder Engineer, Exxon Mobil, Cary, North Carolina

4:50pm *Introduction to Hydraulic Filtration* – *Mike Galloway*, Equipment Builder Engineer, Exxon Mobil, Cary, North Carolina

3:45-5:15pm Tech Session #3 – Professional Development:
Exploring New Dimensions in Your Career
Moderator: *Karl Klotzbach*
Location: Kentucky Suite

This is the second in the series of professional development sessions for students as well as early and mid-career professionals. These topics may be a smaller portion of a formal education program but, more generally are not. Mastering these topics will increase career satisfaction and long-term success.

The focus for this session will be “The Keys to Successful Projects”. Most of the work you do as an engineer or scientist should be considered as a project regardless of the magnitude. The process to define the work to be done, gain approval to do the work, complete it, and evaluate the results should always be applied. Organization of the work is as important as organization of the technical content.

The speakers will provide insights to help you move your ideas and work ahead to successful completion regardless of scale.

3:45pm *Motivations to Understand and Utilize Project Management* – *Karl Klotzbach*, CNH Industrial, Racine, Wisconsin

4:00pm *Project Life Cycle* – *Karl Klotzbach*, CNH Industrial, Racine, Wisconsin

4:20pm *Approval Process* – *Rusty Unterzuber*, AETC Past Chair, Davenport, Iowa

4:30pm *Project Accounting, Estimating, & Budgeting (Tips & Tricks)* – *Rusty Unterzuber*, AETC Past Chair, Davenport, Iowa

4:45pm *The Myths & Realities of Project Management* – *Rusty Unterzuber*, AETC Past Chair, Davenport, Iowa

5:05pm Q&A – *Karl Klotzbach*, CNH Industrial, Racine, Wisconsin
**Monday, February 10**

5:30PM-7:15PM  **Distinguished Lecture**

The Nebraska Tractor Test Laboratory: 100 Years of Service
Moderator: **Rusty Unterzuber**
Roger M. Hoy, PhD., Professor and Director – Nebraska Tractor Test Laboratory, Department of Biological Systems Engineering, University of Nebraska-Lincoln;
Michael F. Kocher, PhD., P.E., Associate Professor and Chair – Nebraska Board of Tractor Test Engineers, Department of Biological Systems Engineering, University of Nebraska-Lincoln
Location: Park Suite

The history of the Nebraska Tractor Test Laboratory will be presented including changes for tractor technology and globalization. Current tractor testing, and interpretation of test reports will be reviewed. Recent research supporting new testing procedures will be discussed including the method to verify tractor power when a full Power Take-Off is not present, and development of a dynamic ROPS test for large tractors. Future testing challenges will be described such as electric tractors, electric power delivery to implements, and multi-mode testing.

7:15PM-9:00PM  **Student / Industry Event**

Location: The Sports & Social Club, 427 S. 4th Street

This event is a great opportunity for students and professionals to become acquainted and share experiences. The casual atmosphere, food, and bowling all make for a relaxing and enjoyable meeting.

Preregistration required: $30 Industry/$15 Student

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**Tuesday, February 11**

7:00AM-5:00PM  **Registration Open**

Location: Regency Ballroom South

7:00AM-8:00PM  **Committee Meetings-See page 15**

8:00-9:45am  **Tech Session #4 – Big Data and Data Management in Digital Agriculture**

Moderator: **Ganesh Bora**
Location: Park Suite

Information and data are key in precision, smart or digital agriculture. Sensors and controllers, telematics, and drones are major source of spatial
and temporal data in digital agriculture. The volume of data in digital agriculture brings challenges of data transfer, telematics, software availability, storage, security of storing in clouds, end uses besides the legal issues of Big Data in Precision Agriculture. Technology and workforce development will be key to providing solutions.

8:05am  Digital Agriculture is only as Good as the Data Underneath: Interoperability and Other Concerns – R. Andres Ferreyra, Syngenta Crop Protection, LLC, Murray, Kentucky

8:30am  Updating the Machinery Management Standard: Needs and Benefits – Ed Brokesh, Kansas State University, Manhattan, Kansas

8:55am  Connecting Machine Data to Farm Management Systems: An Overview of Data Management Technologies from the Implement OEM Perspective – Eric Smith, JCA Electronics, Winnipeg, Manitoba, Canada

9:20am  Big Data Applications Present and Potential – Tyler Mark, University of Kentucky, Lexington, Kentucky

8:00-9:45am  Tech Session #5 – Harvest Logistics in the 21st Century
Moderator: Mark Dilts
Panelists: Kerry Knuth (Grain Farmer), Mead, Nebraska; Jason Veikle (Grain Farmer), Cut Knife, Saskatchewan, Canada; Dan Byers (Custom Forage Harvester), Berwick, Illinois; Harry Wallace (Custom Forage Harvester), Galva, Illinois; Ross Woodruff (Grain Farmer), Sabina, Ohio; Jim Schmidt (Grain Farmer), Manhattan, Kansas
Location: Kentucky Suite

This session will feature a variety of farmers and custom operators talking about logistics in their operations. Each presenter will talk briefly about their operation and the best practices they use. Following will be a panel discussion about operational best practices and needed improvements during the harvest season.

10:15am-12pm  Tech Session #6 – A Pictogram is Worth...
Moderator: Rusty Unterzuber
Karl Klotzbach, CNH Industrial, Racine, Wisconsin;
Valerie Lynch, AEM, Milwaukee, Wisconsin
Location: Park Suite
Pictograms provide a more concise way to communicate a concept in the place of words. Their use in safety signs has grown in popularity and usage for several decades as a means for communicating important information to machinery operators, especially in calling attention to risks of harm for hazardous situations that cannot be eliminated by alternative design solutions or protective measures such as guarding or shielding. This technical session will explore some of the history in the use of pictograms in the creation of safety messages, an international standard that provides principles for conveying safety information through graphic communication and other resources available for use and better understanding of important information communicated through pictograms.

10:00am-12pm Tech Session #7 Hydraulics 101 (part 2) – Fluid Conveyance and Control in Hydraulic Systems
Moderator: Shane Williams
Location: Kentucky Suite
Selecting the proper components to convey and direct hydraulic oil is vital to achieve the appropriate functionality and reliability that the system requires. In order for the oil to do its work, the right amount needs to be in the right place at the right time. This session will focus on the basics of hydraulic tubing and hydraulic hose construction, including a discussion on the various end conditions that are available for these assemblies. A discussion of the different types and operating principles of pressure control, directional control, and flow control valves will also take place, along with some examples of applications when certain valves are a more appropriate choice compared to other possibilities. Other session highlights will include a discussion on concept hydraulic pump circuitry in order to improve performance and efficiency in row-crop tractors, as well as a brief overview of the MS-23/4/4 (Tractor and Implement Hydraulics) committee of ASABE and its involvement in the world of mobile hydraulics.

- **10:20am** Principles of Hydraulics-Proportional Valve Technology – Kyle Capello, Bucher Hydraulics, Elgin, Illinois
- **10:50am** Welded Steel Tube Hardness Measurement and the Relationship to Mechanical Properties for Agriculture Related Applications – Wynn H. Kearns, Indiana Tube Corporation, Evansville, Indiana
TUESDAY, FEBRUARY 11


11:20am Improving Row Crop Tractor Performance by Intelligent Pump Summation – Wyatt Hall, Danfoss Power Solutions, Ames, Iowa

11:35am ASABE and Its Effect on Hydraulic Power on Agricultural Equipment – Michael Stelzle, CLAAS Omaha Inc., Omaha, Nebraska

12:00PM-1:30PM AE50 Awards Recognition Luncheon
Location: Regency Ballroom North
During the luncheon, we’ll recognize AE50 winners for their innovations, advancements and new technologies. Winners are also highlighted in a special issue of ASABE’s Resource magazine. Top ranking AE50 innovations become eligible for the prestigious Davidson Prize, which will be presented with AEM at the Commodity Classic.

1:30PM-5:15PM AE50 Showcases
Each year the AE50 awards recognize companies offering the best engineered innovations for agricultural, food, biological and related systems. The AE50 winners featured in this session were new to the marketplace in 2019, and all have the potential for significant impact in their area of industry. This is an excellent opportunity to learn more about the new features incorporated into these products and share a portion of their journey to the marketplace. The showcases are open to all registered attendees and will feature presentations on a sampling of those products receiving 2020 AE50 awards.

1:30-3:15pm AE50 Showcase I
Moderator: Austin Roepke
Location: Park Suite
1:30pm Plant Stand Analyzer – Lie Tang, FieldRobo LLC, Ames, Iowa
1:55pm Sinclair Ecolabel® and Large Label V6 – Elizabeth Correia; Jeremy Isch, Sinclair Systems International LLC, Fresno, California
2:20pm LS475 Liquid System – Joshua Engelbrecht, John Deere Des Moines Works, Moline, Illinois
2:45pm Case IH AFS Connect® Magnum™ Tractor – Terry Sizemore, CNH Industrial, Racine, Wisconsin
TUESDAY, FEBRUARY 11

3:30-5:15pm  AE50 Showcase II
Moderator: Brian Huenink
Location: Park Suite
3:30pm  Optidisc® Elite Cutterbar and OptiSense™ Belt Stall Indicator – Damion Babler, Kuhn North America, Brodhead, Wisconsin
3:55pm  Ground Speed Management II – Todd DeBock, New Holland Agriculture, New Holland, Pennsylvania
4:20pm  Tractor Implement Management (TIM) – Norbert Schlingmann, Agricultural Industry Electronics Foundation (AEF) e.V., Frankfurt, Hesse, Germany
4:45pm  Intelligent Spray Control System – Gary Vandenbark, Smart Guided Systems LLC, Indianapolis, Indiana

6:30-8:30pm  AETC Planning Committee Meeting
This meeting is for anyone currently on the AETC planning committee and anyone who is interested in becoming a contributing member. We’ll evaluate 2020 AETC and start planning for the 2021 conference. RSVP is required; see Jessica Bell at the ASABE registration desk for information.

Wednesday, February 12

7:00AM-10:00AM  Continuing Professional Development Session
COST: $50
CPD3 – Cost, Weight and Performance Advantages of Converting Weldments to Castings
Instructor: Steve Metz, Applied Process, Inc., Oshkosh, Wisconsin
Location: Gulfstream-Hialeah
Are you searching for weight savings opportunities? Are you struggling with consistency in your fabrications? Perhaps a casting conversion is right for you. Join us for an educational session that will define what components are the best targets for casting conversion, provide insight to the most important steps in the design process, and explain the added performance features that can be achieved with castings. Our presenters will share success stories and will answer specific questions you may have about the casting conversion process.

7:30AM-7:30PM  Committee Meetings-See page 15
Resource magazine is pleased to sponsor the AE50 Award program, celebrating companies for their recent developments in agricultural, food, and biological systems. From the many entries submitted in 2019, an expert panel selected the products for recognition. The award-winning products are those ranked highest in innovation, significant engineering advancement, and impact on the market served.

All winning AE50 products become eligible for the Davidson Prize, named for JB Davidson, the father of modern agricultural engineering. Up to three of the most innovative products, which are likely to have a significant impact on agricultural production, will be selected. Stay tuned as the prestigious Davidson Prize is awarded next month at Commodity Classic.

Congratulations to the 2020 winners!

Agricultural Industry Electronics Foundation AEF e.V., Tractor Implement Management (TIM)
Application Insight LLC, Wind Tunnel in a Box™
Candidus, Inc, Adaptive Lighting Controller
Case IH, Case IH Precision Air™ 5 Series Air Carts
CLAAS of America Inc., AXION 900 Series Tractors
CLAAS of America Inc., CLAAS 926-Series Corn Head
CLAAS of America Inc., CLAAS JAGUAR 900 Series Harvesters
CLAAS of America Inc., CLAAS ORBIS 750 Forage Harvester Head
CLAAS of America Inc., JAGUAR TERRA TRAC
CLAAS of America Inc., LEXION 8000 / 7000 Series Combines
CNH Industrial, Case IH AFS Connect® Magnum™ Tractor
CNH Industrial, Wing Wheel System for Case IH Early Riser® 2160 Split-Row Large Front-Fold Planter
Dura Products, DURA-ABS DI Automated Direct Injection
FieldRobo LLC, Plant Stand Analyzer
Groupe Anderson Inc., Fusion720 Xtractor Inline and Single-Bale Combination Wrapper
Innoquest, Inc., SpotOn® Quantum PAR Light Meter
John Deere, MowerPlus™ Smart Connector
John Deere, LS475 Liquid System
John Deere, M & R Series Commercial Walk-Behind Mowers
John Deere, 2700 / 2750 PrecisionCut™ and E-Cut™ Hybrid Triplex Mower
John Deere, John Deere Quik-Knect™
John Deere, N500C Series Air Drill
Kuhn North America, Optidisc® Elite Cutterbar
Kuhn North America, OptiSense™ Belt Stall Indicator
Laforge Systems LLC, LAFORGE DynaTrac
Lindsay Corporation, FieldNET Pivot Watch™
MacDon Industries Ltd, R216 SP Rotary Disc Header
Microsystems First, Inc., Microsystems Raw Food Pasteurization System
New Holland, Ground Speed Management II
New Holland, SideWinder Ultra
New Holland Agriculture, New Holland P-Series Air Carts
RealmFive, Inc, Fetch Communications Device
RealmFive, Inc, Flip State Sensor
RealmFive, Inc, Furrow Underground System
RealmFive, Inc, R5 Click
Sears Seating, Nexus Seat and TLS Suspension System
Sinclair Systems International LLC, Large Label V6
Sinclair Systems International LLC, Sinclair EcoLabel®
Smart Guided Systems LLC, Intelligent Spray Control System
Sukup Manufacturing Co., Cyclone Air System Controls
Sukup Manufacturing Co., Grain Bin Door Safety Latch
Sukup Manufacturing Co., MySukup.com
Sukup Manufacturing Co., Paddle Sweepway
Sukup Manufacturing Co., U-Trough Extended Center Sump
TeeJet Technologies, QJS-D Multiple Outlet Turret Nozzle Body
Valley Irrigation, Valley GPS Guidance
Vermeer, ZR5-1200 Self-Propelled Baler
Woods Equipment Company, Woods® BH100 Groundbreaker® Backhoe
All technical committee meeting agendas and attendance sheets shall contain the ASABE technical committee meeting recording policy. The policy should also be reviewed at the beginning of the meeting.

**Attendance to this meeting denotes compliance with the stated policy.**

**Approved ASABE Technical Committee Meeting Recording Policy:**
- Electronic recording of technical committee meetings will not be allowed except by ASABE staff or committee leadership for the exclusive use in drafting meeting minutes. The recordings will be limited to audio only and will be deleted after the meeting minutes are drafted. Consent from all participants must be secured before recording begins. Even if one participant objects, no recording will be made.
- Photographs will be allowed to be taken of presenters and attendees of technical committee meetings by ASABE staff or if prearranged by a requesting individual.
- Photographs of projected/presented information during technical committee meetings will not be allowed.

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<td>7:00-8:00am</td>
<td>MS-23/2/1 Environment within Ag Vehicle Enclosures: Keeneland</td>
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<td>8:00-9:30am</td>
<td>MS-23/2/2 ATSC ROPS Subcommittee: Keeneland</td>
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<td>8:00-9:00am</td>
<td>MS-23/7/2 Forage &amp; Biomass Engineering: Gulfstream-Hialeah</td>
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<td>9:30-10:15am</td>
<td>MS-23/14 Ag Machinery - Symbols, Displays and Manuals &amp; US TAG for ISO/TC 23/SC 14: Keeneland</td>
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<td>3:45-5:15pm</td>
<td>MS-23/4/3 Lighting and Marking: Keeneland</td>
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<td>STC-02 International Standardization: Keeneland</td>
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<td>MS-03/2 Farm Materials Handling &amp; Transport: Gulfstream-Hialeah</td>
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<td>MS-23/2 Ag Machinery - Common Tests &amp; US TAG for ISO/TC 23/SC 2: Gulfstream-Hialeah</td>
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<td>10:00am-12:00pm</td>
<td>MS-23/6 Applications Systems: Gulfstream-Hialeah</td>
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<td>MS-23/7/1 Grain Harvesting: Keeneland</td>
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<td>MS-23/6 TAG US TAG for ISO/TC 23/SC 6: Gulfstream-Hialeah</td>
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<td>MS-23/7 Harvest &amp; US TAG for ISO/TC 23/SC 7: Keeneland</td>
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<td>MS-23/19 Ag Electronics &amp; US TAG for ISO/TC 23/SC 19: Keeneland</td>
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<td>D497 Revision: Gulfstream-Hialeah</td>
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<td>MS-23/4/1 Agricultural Equipment Braking: Kentucky Suite</td>
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<td>6:30-8:00pm</td>
<td>MS-23/6/3 Dry Materials: Keeneland</td>
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<td>MS-23/4/4 Tractor &amp; Implement Hydraulics: Keeneland</td>
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<td>8:00-10:00am</td>
<td>MS-23/4/5 Tractor Implement Interface/PTO: Keeneland</td>
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<td>10:15-11:45am</td>
<td>MS-23/4 Tractors &amp; US TAG for ISO TC/23/SC 4: Keeneland</td>
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<td>1:00-2:30pm</td>
<td>MS-23 Tractors and Machinery for Agriculture &amp; US TAG for ISO/TC 23 &amp; MS-03 Standards: Keeneland</td>
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<td>5:30-7:30pm</td>
<td>MS-23/6/5 Anhydrous Ammonia Application Equipment: Keeneland</td>
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<tr>
<td>9:00-11:00am</td>
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