



ASABE

American Society of Agricultural
and Biological Engineers

Technical Communities

Applied Science and Engineering (ASE)

The Applied Science and Engineering (ASE) Community provides a professional home for engineers, scientists, researchers, educators, and industry practitioners who apply engineering principles to challenges involving natural resources, biological systems, sustainability, environmental stewardship, and forest-based industries. This cross-cutting Community serves as a forum for technical exchange, standards development, professional networking, leadership development, and the dissemination of research through ASABE conferences, publications, and committee activities.

ASE members represent a diverse range of disciplines and sectors, including academia, government laboratories, consulting organizations, equipment manufacturers, forestry operations, biomass and bioenergy companies, and environmental engineering firms. Through participation in the ASABE Annual International Meeting (AIM), technical committees, standards activities, and publications, members work together to advance engineering solutions that support the productive, sustainable, and environmentally responsible use of biological and natural resources.

The ASE Community comprises five technical committees that provide focused areas for collaboration and leadership:

ASE-09 Environmental Quality Coordinating Committee

ASE-09 leads and coordinates ASABE activities related to environmental quality and promotes the application of engineering expertise to environmental protection and improvement.

ASE-12 Forest Engineering Committee

ASE-12 focuses on technologies, systems, and practices associated with forestry and forest operations, including harvesting systems, biomass logistics, forest products utilization, transportation, safety, and mechanization. The committee is ASABE's primary forum for forest engineering professionals.

ASE-16 Engineering for Sustainability Committee

ASE-16 addresses sustainability issues and metrics across agricultural, biological, and natural resource systems to improve environmental, economic, and social outcomes.

ASE-134 Fertilizers, Soil Conditioners, and Beneficial Substances / U.S. Technical Advisory Group to ISO TC 134

ASE-134 coordinates ASABE activities related to fertilizers and soil amendments and supports international standards development through participation in ISO.

ASE-347 Data-Driven Agriculture / U.S. Technical Advisory Group to ISO TC 347

ASE-347 coordinates ASABE activities related to data-driven agriculture and supports international standards development through participation in ISO.

In addition to technical committees, ASE members participate in broader Society leadership activities, including service on ASABE councils.

Committee Experience:

ASE-12 and ASE-16 typically meet during AIM and virtually throughout the year. Members interested in these topics are welcome to attend committee meetings, join the roster in a role that fits their interests, and receive notices of meetings held outside AIM. All ASE committees welcome active members interested in cross-cutting applied science, and several would benefit from broader participation to better capture new and emerging interests across the profession. The time commitment is usually modest, often only a few hours every couple of months, and can be tailored to each member's goals. For those who want to become more involved, committee service offers insight into how ASABE functions as a Society, leadership opportunities, and valuable professional development.

Keywords:

Forest Engineering	Renewable Resources Management	Bioenergy
Sustainability	Climate Solutions	Forestry Operations
Sustainability Metrics	Applied Science	Data-Driven Agriculture
Environmental Quality	Engineering Innovation	
Bioeconomy	Biomass Utilization	

Circular Bioeconomy Systems Institute (CBSI)

The Circular Bioeconomy Systems Institute (CBSI) is a Strategic Initiative of ASABE that operates within the administrative structure of the ASABE Strategic Initiatives Council. A circular bioeconomy is the biomass-based economic space in which the value of products, materials, and resources is maintained in the economy for as long as possible, minimizing waste toward zero. CBSI was organized to create a multidisciplinary culture that embraces the principles of circularity and to serve as a premier catalyst for system-level innovations that move agricultural, forestry, food, and bio-based industries toward more sustainable circular systems. Its mission is to advance education, professional development, and innovation in sustainable circular bioeconomy systems.

CBSI is deliberately structured to operate across ASABE Communities and to welcome participation from non-engineering disciplines. Full Members are ASABE members; Affiliate Members are individuals outside ASABE who may participate in all CBSI activities and are eligible to hold Working Team and committee offices. This structure brings engineers, scientists, economists, and practitioners from academia, industry, government agencies, and non-profit organizations into the same working groups. CBSI pursues four goals: (i) promote innovations that advance circular bioeconomy systems through knowledge, technologies, metrics, methods, and standards; (ii) lead the development of a multidisciplinary culture; (iii) develop and communicate CBSI information across ASABE and with external partners; and (iv) grow ASABE-CBSI membership. Because its work is inherently cross-cutting, CBSI maintains standing representation on the ASABE Strategic Initiatives, Membership, Standards and Technical, Meetings, and Publications Councils.

Rather than a roster of technical committees, CBSI is organized in tiers built around four Standing Working Teams. The Executive Committee (Chair, Chair-Elect, Vice-Chair, and Immediate Past-Chair) guides strategic direction and coordinates activity. The Leadership Team, comprising the officers of every Working Team and committee plus an ASABE staff representative, oversees and guides the work of the Institute. The four Working Teams are:

Working Team 1 - Innovate Systems

Working Team 1 builds multidisciplinary partnerships across ASABE Communities, other societies, agencies, and industry to drive system-level innovation, and supports collaborative research, proposals, and coordination networks.

Working Team 2 - Develop Methods, Metrics, and Standards

Working Team 2 develops and promotes CBSI-aligned methods, metrics, and standards; maintains an inventory of relevant databases and standards; and engages with initiatives such as ISO/TC 347 and ISO 59000.

Working Team 3 - Organize Meetings

Working Team 3 organizes meetings, conferences, and forums with ASABE and external organizations; vets new CBSI-sponsored events; and coordinates CBSI sessions at the ASABE Annual International Meeting (AIM).

Working Team 4 - Publicize and Promote

Working Team 4 leads curriculum development, technical and messaging documents, outreach, publications, website content, and recognition of excellence.

Three standing committees support governance: Bylaws and Operating Manual (Working Team Vice-Chairs), Nominations and Elections (Working Team Past-Chairs), and the Leadership Team (all Working Team officers plus the Executive Committee). Working Teams may also form sub-teams; for example, the CBSI Website Committee operates as a sub-team of Working Team 4.

Committee Experience:

CBSI holds its annual meeting virtually around the time of AIM, and officer terms begin at the conclusion of AIM. All four Working Teams and the Leadership Team meet virtually on a regular basis and are open to anyone

interested; no prior appointment is needed to attend and observe. Newcomers are encouraged: CBSI was founded to recruit across disciplines, and Affiliate Members who are not ASABE members are explicitly welcome to participate and to hold Working Team office.

Meeting cadence varies by team. The Leadership Team and the Executive Committee meet monthly. Working Teams 1, 3, and 4 meet at least quarterly, with Working Team 3 officers meeting monthly during session-planning season. Working Team 2 meets monthly and asks members to attend a majority of its meetings to retain active status. For most members, the commitment is one virtual meeting every one to three months plus task work between meetings; Working Team 2 requires more. Membership terms run three years and are renewable, and continuing membership depends on active participation.

To join, express interest in writing to any officer on the CBSI Leadership Team. CBSI is actively building out several areas and welcomes volunteers: the Awards Committee, the Education and Professional Career Development Committee, and the Website Committee all need members. Working Team 2 seeks participants with experience in life cycle assessment, ontologies, and standards, particularly in food loss and waste, nutrient recovery, water reuse, biomass and bio-based products, and packaging circularity. Working Team 1 seeks partners for grant development and system-level modeling, including cyber-physical systems and AI applications for circularity. Working Team 3 seeks session organizers and moderators for AIM, as well as members connected to other societies (including ASA, CSSA, SSSA, and AAEA) who can help bring circular bioeconomy content to those programs.

Keywords:

Circular Bioeconomy	Food Loss and Waste	Ontologies and Semantic Interoperability
Circularity Metrics	Nutrient Recovery	FAIR Data
Life Cycle Assessment	Regenerative Agriculture	Systems Modeling
Sustainability Standards	Soil Health	Cyber-Physical Systems
Bio-based Products	Water Reuse and Recycling	Multidisciplinary Partnerships
Biomass Utilization	Sustainable Packaging	Circular Bioeconomy Education
Bioenergy	Plastics Circularity	

Education, Outreach and Professional Development (EOPD)

The Education, Outreach, and Professional Development (EOPD) Community advances how agricultural, biological, food, and related engineering knowledge is taught, shared, assessed, and carried into professional practice. EOPD brings together university and community college faculty, extension professionals, program administrators, industry educators, students, and practicing engineers. Its scope includes undergraduate and graduate instruction, engineering technology and management education, curriculum design, accreditation, extension and public outreach, professional ethics, engineering licensure, continuing education, educational research, and the publication and recognition of high-quality scholarship.

EOPD committees are organized in three tiers:

Leadership and Scholarly Coordination

EOPD-01 Executive/Steering coordinates the Community's direction and connects its standing committees, and EOPD-04 Refereed Publications Review and Paper Awards supports editorial review, publication quality, and recognition.

Education, Outreach, and Academic Programs

This tier includes EOPD-203 Undergraduate and Graduate Instruction; EOPD-204 Engineering and Technology Accreditation; EOPD-205 Engineering Technology and Management Education; EOPD-206 Agricultural Technology and Management Curriculum Review and Program Recognition; EOPD-208 Extension; and EOPD-210 Department Heads.

Professional Practice

This tier includes EOPD-412 Professional Ethics, EOPD-414 Engineering Licensure, and EOPD-416 Continuing Professional Development.

EOPD translates this committee work into practical value and professional opportunities for ASABE members. The Community develops oral, poster, panel, lightning, and interactive sessions for the ASABE Annual International Meeting (AIM); promotes evidence-based and experiential teaching; supports accreditation and program improvement; strengthens extension and workforce development; advances ethical professional practice; supports the Agricultural and Biological Engineering PE pathway; and expands lifelong learning opportunities. Current programming also reflects emerging needs: recent meetings have included sessions on AI, IoT, and data-driven agricultural education; engineering education and workforce development for next-generation agricultural technology; evolving faculty roles; an EOPD poster program emphasizing applied outcomes; and the ethics of artificial intelligence and large language models in learning. Overall, EOPD serves as ASABE's home for both the scholarship of education and the professional systems that prepare, support, and continually develop the agricultural and biological engineering workforce.

Committee Experience:

EOPD committee meetings are working sessions rather than formal technical presentations. A typical agenda includes reviewing the previous year's activities, receiving officer and membership updates, assigning award review or judging responsibilities, proposing technical program topics, recruiting session organizers and moderators, and setting action items for the coming year. New members can get involved immediately by attending a committee meeting aligned with their interests, introducing themselves to the chair, and volunteering for a defined task, such as moderating or organizing an AIM session, reviewing an education manuscript, judging extension or student presentation awards, helping develop a webinar, or contributing to a curriculum, accreditation, ethics, or outreach project.

Most committees convene during AIM, with virtual meetings added as projects require; EOPD-210 also meets during the winter, and EOPD-04 conducts much of its work by email. Most EOPD committees are open to all ASABE members; however, EOPD-210 is role-based for department and program heads, EOPD-204 uses elected membership and seeks industry representation, and EOPD-414 exam development requires PE credentials and a substantially greater time commitment, including spring and fall work sessions.

New members are especially needed in EOPD-04 (manuscript reviewers), EOPD-206 (curriculum and program review), EOPD-208 (Extension programming and award review), and EOPD-416 (continuing professional development), while EOPD-412 seeks contributors on AI ethics and responsible educational technology. Emerging initiatives include generative AI policy and assessment, data literacy, workforce and technician pathways, community college transfer models, virtual laboratories, and open educational resources. A typical member can plan on one AIM meeting, one to three virtual check-ins, and several hours of project work during the year; session organizers and officers should expect a larger seasonal commitment.

Keywords:

Accreditation	Continuing Professional Development	Inclusive Pedagogy
Educational Assessment	Educational Research	Industry-Academia Partnerships
Curriculum Development	Program Evaluation	K-12 STEM Education
Engineering Education	Engineering Licensure	Simulation-Based Instruction
Engineering Technology and Management	PE Exam Preparation	Lifelong Learning
Artificial Intelligence in Education	Experiential Learning	Professional Ethics
Digital Learning	Extension and Outreach	Workforce Development
Community College Pathways	Faculty Development	

Energy Systems (ES)

The Energy Systems (ES) Community encompasses energy research, energy education, energy-related standards, and the application of non-nuclear energy and fuels, serving the growing community of scientists, engineers, industries, and policy experts working in energy-related fields. Its scope includes energy systems in which agriculture, food, and biological systems are either the source or the consumer of energy.

The ES Community includes several committees that organize technical sessions and support standards development:

ES-04 Publications Review

ES-04 supports the review of manuscripts for ASABE journals.

ES-210 Renewable Power Generation

ES-210 helps plan technical sessions for the ASABE Annual International Meeting (AIM) and supports standards development. Recent areas of member interest include agrivoltaics, anaerobic digestion, integrated energy systems, and solar cookers. The committee meets at AIM.

ES-220 Bio-based Energy, Fuels, and Products

ES-220 is very active in planning technical programming for AIM and maintains a smaller set of standards. Members work across a wide range of thermochemical and biochemical bioprocessing to produce fuels and bioproducts, and conduct sustainability assessments. The committee meets at AIM.

ES-238 Solid Biofuels / U.S. Technical Advisory Group to ISO TC 238

ES-238 coordinates ASABE activities related to solid biofuels and serves as the U.S. Technical Advisory Group to ISO TC 238.

ES-300 Energy Utilization and Application

ES-300 focuses on standards development for energy use in agricultural equipment and facilities, with emphasis on livestock housing, controlled environment agriculture, and other stationary applications. The committee meets at AIM.

ES-400 Electrical Code for Agriculture

ES-400 addresses electrical code matters for agricultural applications.

Committee Experience:

The best way to get involved in the ES Community is to attend committee meetings and ES-sponsored technical sessions at AIM. New members are always welcome. Members who are unable to attend AIM can contact ASABE staff or the Community chair to express interest and learn more.

Keywords:

Biomass and Waste Processing	Bioproducts	Economic Modeling
Thermochemical Conversion	Anaerobic Digestion	Renewable Energy Systems
Biochemical Conversion	Agricultural Energy Use	Agrivoltaics
Biofuels	Sustainability Assessment	

Ergonomics, Safety and Health (ESH)

The Ergonomics, Safety, and Health (ESH) Community provides support and leadership for improving ergonomics, safety, and health in agricultural and biological systems. Its work is carried out through the following committees:

ESH-01 Executive Oversight

ESH-01 provides leadership and coordination in defining, developing, and advising on activities and educational materials that improve agricultural and biological ergonomics, safety, and health, and coordinates and supports the ESH committees. The committee meets annually during the ASABE Annual International Meeting (AIM) or as needed, and is open to any ASABE member interested in promoting ergonomics, safety, and health through membership in an ESH committee.

ESH-02 Policy and Forward Planning

ESH-02 addresses policy issues affecting the organization and operation of the ESH Community and its committees, and provides internal and external liaison (external to both ESH and ASABE, with appropriate executive review) on safety policy issues. The committee meets at AIM and virtually as needed. It has five to seven members, made up of the chairs and vice chairs of ESH-01, ESH-03, and ESH-04, plus three to four additional members elected at large.

ESH-03 Standards

ESH-03 coordinates the development of safety-related standards from the ESH Community and other ASABE technical communities, and serves as the parent committee for ESH-03/1 and ESH-03/2. ESH-03 meets annually at AIM together with its subcommittees. Membership is open to all ASABE members.

ESH-04 Technology Exchange

ESH-04 develops technical sessions, plans separate conferences, develops continuing education events, and assists other communities with ergonomics-, safety-, and health-related programming. The committee meets annually at AIM or as needed, and has a minimum of five members with no maximum.

ESH-04/1

ESH-04/1 facilitates the review and publication of peer-reviewed applied and basic research in agricultural safety and health. Its members (associate editors) are appointed by the community editor based on the areas typically covered by the journal (e.g., agricultural equipment safety, occupational epidemiology, and ergonomics).

ESH-04/2

ESH-04/2 addresses new technologies as they evolve for farmers and ranchers with disabilities and is associated with AgrAbility.

ESH-05 Nominations

ESH-05 recommends candidates for positions in the ESH Community and its committees. The committee meets at AIM and virtually or by email as needed. It consists of four members: one each from ESH-02 Policy and Forward Planning, ESH-03 Standards, and ESH-04 Technology Exchange, and the ESH Community vice chair, who chairs the committee.

Committee Experience:

ESH committee meetings at AIM are open, collaborative working sessions where members shape standards, propose new projects, and coordinate safety-focused initiatives across ASABE. New members can participate immediately; no prior experience or committee appointment is required. Ways to get involved include participating in ESH technical sessions, attending any ESH committee meeting at AIM (all are open), or expressing interest through ASABE's committee portal after AIM.

Keywords:

Safety	Crash	Hazard
Ergonomics	Incident	Equipment and Machinery
Health	Injury	Animals
Exposure	Fatality	Entanglement
System Technology	Illness	Engulfment
Surveillance	Risk	Fishing
Visibility	Liability	Forestry

Global Engagement (E-2050)

The E-2050 Global Engagement Community expands ASABE's international presence, visibility, outreach, and impact at a time of mounting global challenges in food, energy, and water security. It pursues this mission by extending members' international networks, increasing the participation of both international and domestic members in Society activities, coordinating liaisons with sister organizations and global partners, and aligning global engagement work across ASABE. Its objectives include integrating global interests Society-wide, nurturing international communities, serving non-U.S. members, representing ASABE before peer societies, developing international programming for ASABE meetings, facilitating global conferences and exchanges, encouraging cross-border research collaboration, and fostering ASABE sections in international regions. E-2050 is open to new members at any meeting; members serve renewable three-year terms, and each affiliates with a committee. The group normally meets by Zoom before, or in person during, the ASABE Annual International Meeting (AIM).

The Community is organized in tiers. The Global Engagement Executive Committee is composed of the Chair, Vice Chair, Secretary, Past Chair, representatives to the Membership Development Council (MDC) and Meetings Council, and the chairs of the E-2050 committees. It reviews committee recommendations, initiates and executes programs, coordinates international activities for AIM with the Director of Advancement, carries actions requiring approval to the appropriate council, and reports to the E-2050 membership and the ASABE Board of Trustees. Officers advance through a succession ladder: the Secretary typically becomes Vice Chair and the Vice Chair becomes Chair, each serving one-year terms, with the Past Chair remaining for one additional year. The Chair convenes meetings, sets agendas, maintains liaison with headquarters and peer international organizations, keeps the bylaws current, and ensures committee scope statements are on file; the Vice Chair leads the Programs Committee and submits membership and officer lists; and the Secretary records and distributes minutes and consolidates committee reports.

Beneath the Executive Committee are five standing committees, each open to any interested ASABE member. Each committee generally elects a Vice Chair annually, who advances to Chair after the following AIM:

E-2050/1 International Member Support

E-2050/1 serves members residing outside the United States and Canada and helps them integrate into ASABE activities, with particular attention to their AIM experience.

E-2050/2 International Membership Community Support

E-2050/2 coordinates ASABE's international community groups, each of which designates a representative, and oversees community formation, scope changes, and five-year charter reviews approved by the Executive Committee.

E-2050/3 Programs

E-2050/3, chaired by the Global Engagement Vice Chair, coordinates technical sessions, professional development, symposia, and student programming for AIM, and trains session moderators.

E-2050/4 Global Partners

E-2050/4 maintains relationships with peer engineering societies and organizations such as CIGR and UN FAO.

E-2050/5 Global Conference Committee

E-2050/5 develops proposals for internationally scoped ASABE meetings and uses a two-year officer cycle.

The Executive Committee may create or terminate additional standing or regional committees through a written proposal process, and every committee chair reports annually to the Executive Committee.

Committee Experience:

E-2050 is an open, working Community for ASABE members interested in strengthening international participation, partnerships, programs, conferences, and professional communities. Meetings are welcoming and action-oriented: members hear committee updates, identify needs, offer ideas, volunteer for assignments, and connect international perspectives with ASABE activities. New members may attend a meeting before receiving a formal appointment and should select a committee that matches their interests. A useful first step is to volunteer for one defined task, such as reviewing a proposal, contacting a partner organization, planning a session, welcoming international attendees, or supporting a student activity.

E-2050 meets in connection with AIM or via Zoom and conducts additional business virtually as needed. The Executive Committee, International Membership Community Support, and Programs Committees meet at AIM, with follow-up during the year; International Member Support also works virtually on outreach, onboarding, and mentoring. Global Partners meets at least annually, and the Global Conference Committee convenes when international conference proposals require planning or oversight.

All committees' welcome participation, with the greatest need in the Programs Committee, especially from international community representatives, students, young professionals, and technical program leaders. Additional help is valuable for member mentoring, community coordination, partner outreach, conference planning, and representation from underrepresented regions and sectors. A new member may spend about three to eight hours per year, active contributors one to three hours per month during projects, and officers two to five hours per month, with more time needed near AIM and major deadlines.

Keywords:

Global Engagement	Membership Development	Capacity Building
International Membership	International Communities	Food Security
International Partnerships	Agricultural and Biological Engineering	Energy Security
International Programs	Cross-Cultural Collaboration	Water Security
Global Conferences	Professional Practice	

Information Technology, Sensors and Control Systems (ITSC)

The Information Technology, Sensors, and Control Systems (ITSC) Community advances the development and application of sensing, computing, artificial intelligence, automation, robotics, and information technologies across agricultural, biological, food, and environmental systems. ITSC connects researchers, engineers, students, industry professionals, and technology developers working from fundamental sensing and computational methods through integrated intelligent systems. Its activities support research exchange, technical programming, publications, standards, professional collaboration, and the translation of digital technologies into practical applications.

ITSC operates through several complementary tiers:

Leadership

The Executive and Steering Committees (ITSC-01 and ITSC-02) provide Community leadership, strategic coordination, representation to ASABE councils, and continuity across technical committees.

Community Functional Committees

ITSC-04 (Publications and Paper Awards), ITSC-06 (Technical Programs), and ITSC-07 (Forward Planning and Structure) help coordinate programming for the ASABE Annual International Meeting (AIM), identify emerging areas, develop new initiatives, and connect ITSC activities with broader ASABE priorities.

Technical Committees

ITSC has six technical committees: ITSC-217 Computational Methods, Simulations, and Applications; ITSC-230 Biosensors; ITSC-254 Emerging Information Systems; ITSC-312 Machine Vision; ITSC-318 Mechatronics and Robotics; and ITSC-348 Electromagnetics and Spectroscopy. Together, they cover topics such as artificial intelligence and machine learning, modeling and simulation, data analytics and decision support, agricultural information systems, Internet of Things and connected sensing, biosensing, computer vision and imaging, autonomous systems and robotics, control and mechatronics, and spectral and electromagnetic sensing. Because these technologies increasingly intersect, ITSC also fosters multidisciplinary topics such as digital agriculture, precision agriculture, smart food and biological systems, edge AI, sensor fusion, digital twins, autonomous machines, and data-driven decision systems.

Committee Experience:

ITSC committee meetings at AIM offer an accessible way for members to move from attending technical presentations to actively shaping the technical program and the Society's future direction. New members, including students and early-career professionals, are encouraged to attend the technical committee meeting that most closely matches their interests, introduce themselves to the chair and officers, and volunteer for a manageable activity. Entry points include helping develop a session topic, organizing or moderating an AIM session, reviewing abstracts, suggesting invited speakers or special initiatives, participating in working groups, and eventually serving in committee leadership.

The six technical committees normally convene in association with AIM, and some also hold one or more virtual meetings or conduct planning by email during the year. ITSC-01 and ITSC-02 coordinate Community leadership and planning, while ITSC-04, ITSC-06, and ITSC-07 support publications, programming, awards, and future initiatives. For most members, participation can be relatively light: attending the annual committee meeting and contributing to occasional electronic discussions or a specific activity during the year. Members who organize sessions, review papers, lead initiatives, or serve as officers should expect a greater but manageable commitment.

New participation is particularly valuable as ITSC expands into rapidly developing areas such as generative and foundation AI, agricultural robotics and autonomy, cybersecurity, trustworthy AI, and connected agricultural systems. Greater engagement in these committees and in cross-committee initiatives helps ensure that AIM

programming keeps pace with new technologies and attracts participation from academia, industry, government, students, and young professionals. New members do not need to arrive with a defined leadership role; attending, contributing ideas, and volunteering for one concrete activity is an effective way to become involved.

Keywords:

Artificial Intelligence	Computational Modeling and Simulation	Mechatronics and Control Systems
Agricultural Robotics	Data Analytics and Decision Support	Remote and Proximal Sensing
Automation and Autonomous Systems	Digital Agriculture and Precision Agriculture	Data Interoperability and Standards
Machine Vision and Image Processing	Internet of Things (IoT) and Connected Systems	Trustworthy AI and Cybersecurity
Sensors and Sensor Fusion	Agricultural Information Systems and Data Management	Smart Agricultural, Biological, and Food Systems
Biosensors	Edge Computing and Edge AI	
Spectroscopy and Hyperspectral Imaging	Digital Twins	

Machinery Systems (MS)

The Machinery Systems (MS) Community encompasses a structured network of administrative and technical committees dedicated to advancing agricultural machinery systems, engineering research, and international standardization. The Community facilitates technical exchange, coordinates journal manuscript reviews, and manages national and international standards development. A major emphasis is establishing standards and developing U.S. positions for International Organization for Standardization (ISO) activities across a range of agricultural and forestry equipment domains.

The MS Community is organized in three tiers:

Governance and Administrative Committees (MS-01 through MS-05)

These leadership committees manage executive operations, steering procedures, standards oversight, publication peer review, and nominations.

Technical Domain Committees

Operating alongside the governance committees, the main technical domain committees drive sector-specific research and broad standardization efforts. They include MS-23 Tractors and Machinery for Agriculture and Forestry; MS-45 Soil-Plant-Machine Dynamics; MS-48 Specialty Crop Engineering; MS-49 Crop Production Systems; MS-54 Precision Agriculture; MS-58 Equipment Automation; and MS-60 Unmanned Aerial Systems.

Specialized Subcommittees and Work Groups

Below the domain committees, specialized subcommittees and work groups address specific technical topics. Under MS-23, primary branches such as MS-23/2 (Common Tests), MS-23/4 (Tractors), MS-23/6 (Application Systems), MS-23/7 (Harvest), and MS-23/19 (Agricultural Electronics) are further divided into smaller units addressing topics such as tractor braking systems, rollover protective structures (ROPS), liquid materials application, grain harvesting, animal identification, and high-speed data communications.

Committee Experience:

Attending committee meetings during the ASABE Annual International Meeting (AIM) provides an open, welcoming entry point into the MS Community. Most domain committees hold open sessions during AIM, allowing any attendee, from students and early-career engineers to experienced professionals, to participate in discussions and join as official members without lengthy administrative steps.

Keywords:

Tractors	Post-Harvest	Drones
Soil Dynamics	Equipment Logistics	Precision Agriculture
Soil-Plant-Machine Dynamics	Machinery Design	Agricultural Electronics
Specialty Crops	Robotics	Cotton Engineering
Row Crops	Autonomy	Plant Protection Products
Orchards	Automation	Spray Drift
Greenhouses	Unmanned Aerial Systems	

Natural Resources and Environmental Systems (NRES)

The NRES Community advances the theory and practice of engineering in natural resources and environmental systems by: (i) encouraging research, experiments, tests, and other original work on the protection, restoration, remediation, and wise development and use of natural resources and environmental systems; (ii) supporting the preparation and dissemination of original work that advances knowledge of processes involving and affecting soil, water, and other natural resources; (iii) holding meetings for the presentation and discussion of original work, and for collaboration and communication with other engineering, technical, and special interest groups within and outside the Society; (iv) verifying the technical accuracy of papers, reports, textbooks, online resources, and other materials to be published on natural resources and environmental systems; (v) developing and promulgating standards and engineering practices; (vi) encouraging NRES members to connect with one another and with allied engineers, scientists, and technologists for the mutual exchange of knowledge and experience; (vii) fostering undergraduate, graduate, and continuing education in natural resources and environmental systems engineering; (viii) promoting safety in the design and use of equipment through educational activities within the Community's scope; and (ix) promoting the extension of natural resources and environmental systems engineering knowledge to farmers, ranchers, foresters, resource managers, agricultural and resource conservation consultants, industry professionals, and the general public through local, state, and federal agencies and non-governmental organizations.

The Community comprises eight committees that new members can join based on their interests: NRES-21 (Hydrology); NRES-22 (Soil Erosion and Water Quality); NRES-23 (Drainage); NRES-24 (Irrigation); NRES-25 (Streams, Reservoirs, and Wetlands); NRES-26 (Sustainable Land Resources); NRES-27 (Ag By-products and Animal Mortality Management Systems); and NRES-28 (Ecological Engineering). Members who become leaders in these committees can be elected to higher-level Community committees responsible for programming, steering, publications, and technical/standards development in NRES focus areas.

NRES-21 Hydrology Group

The Hydrology Group addresses the science of water in the atmosphere and on and beneath the earth's surface, building understanding of the hydrologic principles on which engineering applications are based. NRES-21 meets annually during the ASABE Annual International Meeting (AIM).

NRES-22 Soil Erosion and Water Quality

This committee addresses soil erosion processes caused by water and wind; sediment and chemical transport and cycling; the effects of sediment-associated and dissolved chemicals on water quality; and methods for controlling erosion, sedimentation, and water pollution. NRES-22 and its subcommittees (identified by three-digit codes) meet annually at AIM and virtually as needed.

NRES-23 Drainage Group

This committee focuses on research and education in the planning, design, construction, operation, and maintenance of drainage facilities, and on the quality of drainage water.

NRES-24 Irrigation Group

The NRES-24 Irrigation Group leads and coordinates ASABE activities related to the planning, design, construction, management, operation, and maintenance of irrigation facilities. NRES-24 typically meets annually during AIM, with online collaboration as needed to advance current projects.

NRES-25 Streams, Reservoirs, and Wetlands Group

NRES-25 leads and coordinates ASABE activities related to planning, designing, constructing, operating, monitoring, and managing stream, reservoir, and wetland systems, which provide essential services to people and the planet. NRES-25 and its three subcommittees (NRES-25x) meet annually at AIM, while subcommittees and smaller work groups meet as needed throughout the year to carry out committee activities.

NRES-26 Sustainable Land Resources

This committee leads and coordinates ASABE activities related to standards, policies, planning, design and construction, operation and maintenance, evaluation, and outreach surrounding the treatment and management of land resources. The committee regularly updates relevant technical standards and develops new ones as needed. It usually meets annually at AIM, with additional meetings of subcommittees tasked with reviewing and revising technical standards.

NRES-27 Ag By-products and Animal Mortality Management Systems

This committee leads and coordinates ASABE activities related to standards, policies, planning, design and construction, operation and maintenance, evaluation, and outreach surrounding the treatment and management of agricultural byproducts, including animal mortalities. The committee regularly updates relevant technical standards and develops new ones as needed. It usually meets annually at AIM, with additional meetings of subcommittees tasked with reviewing and revising technical standards.

NRES-28 Ecological Engineering

NRES-28 promotes the development of sustainable ecosystems through the knowledge and application of ecological engineering and ecological principles. The committee meets each year at AIM, with online collaboration throughout the year as needed to advance current projects.

Committee Experience:

Members can join any of the NRES-2x committees during AIM, or express interest through ASABE Engage or by contacting the committee's chair, vice-chair, or secretary. Most committees meet online during the year, with in-person social and networking opportunities at AIM. Committees lead efforts in developing technical standards, publishing special collections, hosting grant brainstorming sessions and webinars on committee topic areas, and providing mentoring and networking.

Keywords:

Hydrology	Streams	Land Resources
Soil Erosion	Reservoirs	Ag By-products
Water Quality	Wetlands	Animal Mortality
Drainage	Sustainable Land	Ecological Engineering
Irrigation	Water Resources	

Plant, Animal and Facility Systems (PAFS)

The Plant, Animal, and Facility Systems (PAFS) Community focuses on the engineering of managed agricultural and biological production systems and the built environments that support them. The Community integrates engineering science with biology, agronomy, animal science, and environmental stewardship to improve the productivity, efficiency, safety, and sustainability of plant and animal systems. PAFS members address challenges across controlled and open environments, from field-scale crop systems to animal housing and specialty facilities, emphasizing systems thinking that connects agricultural and biological requirements, infrastructure, technology, and management practices. Core interests include system design and optimization, productivity, environmental control, resource use efficiency, animal well-being, crop quality, and worker safety.

PAFS is organized into tiers of technical committees that reflect increasingly focused areas of application and expertise. At the Community level, PAFS defines the overarching vision and strategic priorities for the physical systems that support plant and animal production. Beneath this level, technical committees concentrate on specific system types, technologies, or cross-cutting challenges within plants, animals, and facilities. These committees serve as collaborative working groups where members exchange research findings, develop conference programming, identify emerging issues, and contribute to standards, guidelines, and best practices. This tiered structure allows broad systems topics, such as environmental control or facility design, to connect seamlessly with specialized areas like livestock housing, greenhouses, or controlled environment agriculture while maintaining coherence across discussions and activities.

PAFS provides a clear home for members interested in engineered biological systems and their interaction with the built environment, supporting professional engagement that ranges from fundamental research to applied design, operations, and standards development. For new members, PAFS offers an intuitive entry point for understanding how engineering supports agricultural and biological production systems. For experienced members, it provides leadership opportunities to shape future technologies, standards, and practices that advance resilient, efficient, and humane agricultural systems.

Committee Experience:

PAFS committee meetings at the ASABE Annual International Meeting (AIM) are designed to be inclusive, collaborative, and action-oriented. These meetings bring together researchers, educators, industry professionals, and students who share an interest in engineered systems that support plant and animal production and their associated facilities. New members are strongly encouraged to attend; no prior committee experience is required. Meetings typically begin with brief introductions and updates, making it easy for newcomers to understand the committee's scope and current activities. Attending a meeting is often the first step toward deeper involvement, such as helping organize sessions, contributing to publications or standards, or taking on leadership roles.

Most PAFS technical committees meet annually at AIM, and some also hold virtual meetings or working sessions throughout the year as needed. Committees that organize technical sessions or sponsor content for AIM tend to meet regularly to review abstracts, plan programming, and identify new topics of interest. Across PAFS, committees are continually looking for members who bring fresh ideas, interdisciplinary perspectives, and emerging technical expertise, particularly in new production systems, environmental control technologies, data-enabled systems, sustainability, animal well-being, and modern facility design. Early-career professionals, students, and industry practitioners are especially encouraged to participate, as their perspectives help committees stay relevant and forward-looking.

Special initiatives discussed during AIM committee meetings may include proposing new or joint technical sessions, identifying needs for standards or guidelines, organizing workshops or webinars, and exploring opportunities for collaboration across ASABE Communities. Time commitments are generally manageable: most committee members participate in one in-person meeting at AIM (typically 60–90 minutes), along with limited follow-up

communication during the year, often by email or virtual meeting. Leadership roles require additional time but also offer meaningful professional development and visibility within the Society. Overall, PAFS committee meetings are intended to be welcoming, productive, and flexible, allowing members to contribute at a level that matches their interests, expertise, and availability while helping advance ASABE's mission.

Keywords:

Plant Systems	Thermal Management	Biosecurity
Animal Systems	Lighting	Animal Welfare
Agricultural Facilities	Air Quality	Crop Quality
Housing and Structures	Waste Management	Sustainability
Environmental Control	Precision Livestock Systems	Safety
Ventilation	Controlled Environment Agriculture	Systems Integration

Processing Systems (PRS)

The Processing Systems (PRS) Community advances the profession of agricultural and biological engineering by serving as a collaborative platform for professionals, researchers, educators, industry practitioners, and other stakeholders engaged in the engineering and technological aspects of processing systems. Its scope encompasses the postharvest processing, handling, preservation, and storage of crops, feed, and other biological materials; food and bioprocess engineering; bioprocessing and bioconversion; food and organic waste management, valorization, and resource recovery; and the design, development, evaluation, and application of machinery, equipment, and systems for food, feed, and bioprocessing operations. The Community also addresses emerging and industrial challenges through engineering innovation, research and development, education, professional training and extension, and policy and standards development. Through engagement across academic, government, research, and private-sector institutions, PRS promotes knowledge exchange, interdisciplinary collaboration, and the development and adoption of sustainable, efficient, resilient, and innovative processing technologies and systems.

The PRS Community is composed of the following committees:

PRS-01 Executive Committee

PRS-01 conducts the affairs of the Processing Systems Community.

PRS-02 Steering Committee

PRS-02 serves as the advisory body to the Executive Committee, studying Community needs and recommending appropriate Community functions.

PRS-03 Standards and Technical Oversight

PRS-03 coordinates standards development, reviews standards projects within the Community's scope, and coordinates PRS standards efforts with other technical communities.

PRS-04 Publications

PRS-04 leads and coordinates ASABE activities related to all major PRS publications and encourages high-quality publications that serve the interests of the food and process engineering sector.

PRS-06 Program

PRS-06 develops quality programs for the PRS Community at the ASABE Annual International Meeting (AIM) and throughout the year to promote the exchange of ideas and professional development. Its work includes organizing PRS technical sessions at AIM, which typically comprise invited sessions, oral presentation sessions, and a poster session. The committee rarely meets formally but communicates by email throughout the year.

Technical Committees

PRS has seven technical committees in which members with common interests meet, communicate, and work together toward shared objectives: PRS-280 Bioprocess and Bioconversion; PRS-701 Physicochemical Properties of Biological Products; PRS-702 Crop and Feed Processing and Storage; PRS-703 Food Process Engineering; PRS-293 Feed Machinery / U.S. TAG to ISO TC 293; PRS-326 Machinery for Foodstuffs / U.S. TAG to ISO TC 326; and PRS-707 Food and Organic Waste Management and Utilization.

Committee Experience:

Each PRS committee, including the Executive, Steering, Standing, and Technical Committees, meets annually in conjunction with AIM. Additional virtual meetings may be convened throughout the year as needed to address committee business, emerging priorities, and time-sensitive matters. PRS committees may also collaborate through webinars, online meetings, and other virtual platforms to discuss current and emerging issues, exchange technical knowledge, and advance joint initiatives.

Committee membership consists of voting members, observing members, and designated representatives and liaisons. Individuals interested in contributing to a committee may be added upon request, initially as observing members; appointment as a voting member requires formal approval by the respective committee. As a general practice, new members serve as observing members for at least one full year before being considered for voting membership or for officer, representative, or liaison positions. This period gives new members an opportunity to become familiar with the committee’s mission, responsibilities, activities, and operating procedures while actively participating in its work. Exceptions may be considered for individuals with relevant prior experience on ASABE technical committees.

The PRS technical committees provide technical leadership within their respective areas of expertise. In addition to facilitating professional and technical exchange, they contribute to the development, review, and advancement of guidelines, recommendations, engineering practices, and standards relevant to processing systems. They also identify emerging technical issues and research needs, organize technical sessions for ASABE meetings, and initiate, coordinate, or sponsor symposia, workshops, webinars, and other professional activities as appropriate. Through these functions, the technical committees strengthen collaboration among academia, industry, government, and other stakeholders while advancing innovation, knowledge dissemination, and professional practice within the PRS Community.

Keywords:

Physicochemical Properties	Postharvest Modeling	Upcycling
Thermal Properties	Advanced Food Processing	Bio-based Materials
Crop and Feed Drying	Food Safety Engineering	Biogas Production
Grain and Feed Handling and Storage	Agricultural Waste Valorization	Biomass Conversion
Moisture Management	Food and Organic Waste Management	Waste-to-Resource Conversion