JOHN MICHAEL LONG

Associate Professor and Extension Agricultural Engineer
Department of Biosystems and Agricultural Engineering, Oklahoma State University
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REGISTRATION

Professional Engineer, Oklahoma, License #30420

EDUCATION

Doctor of Philosophy in Biological Engineering, December 2014.
North Carolina State University, Raleigh, North Carolina.
Dissertation: *Development of a Charcoal Slurry for Compression Ignition Internal Combustion Engines.*

Master of Science in Biological Engineering, August 2008.
North Carolina State University, Raleigh, North Carolina.
Thesis: *Research on a Post-Frame Burley Tobacco Curing Structure for Wire-Frame Racks.*

Bachelor of Science in Biological Engineering, May 2005.
North Carolina State University, Raleigh, North Carolina.
Concentrations: Agricultural and Environmental Engineering.
Senior Design Project: *Semi-Automated Conversion of Waste Vegetable Oil to Biodiesel.*

AREAS OF INTEREST

Teaching
Mechanical System Design
Agricultural Machinery Systems
Fluid Power Transmission

Research/Extension
Precision Ag & Intelligent Machine Systems
Sprayer Technology and Drift Mitigation
Planting Systems

PROFESSIONAL EXPERIENCE

Associate Professor, July 2020 – Present
Oklahoma State University, Department of Biosystems and Agricultural Engineering
Appointment: 60% Teaching : 40% Extension (current)

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PGR2025-00055

Assistant Professor, August 2014 – July 2020
Oklahoma State University, Department of Biosystems and Agricultural Engineering
Appointment: 60% Teaching : 40% Extension (6/2016 – 7/2020)
Appointment: 70% Teaching : 30% Research (1/2015 – 6/2016)
Appointment: 90% Teaching : 10% Research (8/2014 – 12/2014)

Graduate Research/Teaching Assistant, August 2005 – August 2014
North Carolina State University, Department of Biological and Agricultural Engineering.

Research Engineer, May 2005 – August 2005
North Carolina State University, Department of Biological and Agricultural Engineering.

Engineering Intern, May 2004 – July 2004
Amadas Industries, Suffolk, Virginia.

Philip Morris Cooperative Extension Apprentice, May 2003 – July 2003
Davidson County Cooperative Extension Office, Lexington, North Carolina.

HONORS

Alpha Epsilon Distinguished Service Faculty Award, 2017, 2019, 2025.

ASABE Journals 2020 Outstanding Reviewer Award, 2021.

Group Award for Outstanding Faculty and Field Staff Program Contributions with the Oklahoma Cooperative Extension Service, 2018.

OSU President's Cup for Creative Interdisciplinarity Overall Trophy Winners, 2017.

NCSU GSA Outstanding Graduate Teaching Assistant Award Nominee, 2013.

Philip Morris Fellowship, 2010.

E. G. Moss Fellowship, 2006 – 2007.

Fred G. Bond Tobacco Scholarship, 2004 – 2007.

Undergraduate Research Award, 2005.

National FFA American Farmer Degree Recipient, 2003.

Golden Key International Sophomore Recognition, 2003.

Gamma Sigma Delta Outstanding Freshman, 2002.

EXPERIENCE SUMMARY

Teaching

Teaching efforts focus on courses and topics related to machine design and testing. A total of eight different courses have been taught within the Biosystems and Agricultural Engineering department with six of those courses being newly developed course offerings. Two are required courses for upperclassmen enrolled in the Biosystems Engineering Machine Systems and Ag Engineering option (BAE 4224 & BAE3223) and three required for the Ag Systems Technology degree (AST 1413, AST 2313, & AST 4013). Course material updates and improvements are conducted each semester to continually advance content and instruction.

Student advising has played a significant part in my teaching efforts. I serve as co-coordinator of student advising and the curriculum coordinator for both departmental degree programs. Serving as faculty advisor for Cowboy Motorsports has led to increased club involvement in the department, college, and university. Emphasis on developing marketable skills and providing experiential learning to compliment classroom instruction has made a positive impact on student success and excitement towards learning.

Research

At Oklahoma State, research is focused on the design and evaluation of precision agriculture technologies and machinery for crop, forage and livestock production. Agricultural sprayer systems and nozzles common to the industry are evaluated for application rate and pattern during infield tests including unmanned systems. Agricultural planting technologies are analyzed to understand field dynamics, soil properties, and planting parameter effects on seed emergence and placement. Work has been conducted on low-cost alternatives to high precision GPS systems for many applications in precision agriculture.

At North Carolina State, research was conducted on the design and evaluation of various harvesting and post-harvest machinery for flue-cured and burley tobacco production through laboratory and on-farm tests of prototypes. Small-scale electrical and heat energy production systems centered around the thermal conversion of agricultural and forestry residues were designed and evaluated. Embedded computer systems were developed to interface with tractor and implement systems for custom precision control of liquid applicators.

Extension

At Oklahoma State, extension program efforts are centered on precision agriculture and machinery systems. Educational programs, literature and demonstrations have focused on best practices for liquid applicators, spray drift reduction methods, sprayer nozzle selection, row-crop planter maintenance, unmanned systems and precision ag systems for crop, forage and livestock production.

At North Carolina State, research was extended to state stakeholders through statewide and local field days. Engineering drawings were produced and made available for various harvest and

post-harvest machinery and structures for burley tobacco producers and fabricators. Individualized design and support were made available to county educators, producers and other industry stakeholders for burley tobacco curing facility construction and improvement.

TEACHING EXPERIENCE

Oklahoma State University (Enrollment by Semester)

BAE 4224: Machinery for Production and Processing, 2014 – present

Fall 2014: 9
Fall 2015: 9
Fall 2016: 13
Fall 2017: 18
Fall 2018: 9
Fall 2019: 14
Fall 2020: 5
Fall 2021: 9
Fall 2022: 6
Fall 2023: 6
Fall 2024: 10

AST/MCAG 2313: Surveying, 2014 – present

Fall 2014: 15
Spr 2015: 4
Fall 2015: 11
Fall 2016: 11
Fall 2017: 13
Fall 2018: 7
Fall 2019: 7
Fall 2020: 6
Fall 2021: 10
Fall 2022: 13
Fall 2023: 11
Fall 2024: 13

BAE 4400: Quarter Scale Tractor Design (New Course), 2014 – present

Fall 2014: 1
Spr 2015: 1
Fall 2015: 1
Spr 2016: 4
Fall 2016: 4
Spr 2017: 5
Fall 2017: 4

Spr 2018: 2
Spr 2019: 4
Fall 2019: 7
Fall 2021: 3
Spr 2022: 4
Fall 2022: 2
Spr 2023: 1
Fall 2023: 1

BAE 3223: Principles of Agricultural and Off-Road Machinery (New Course), 2015 – present

Spr 2015: 10
Spr 2016: 5
Spr 2017: 8
Fall 2017: 16
Fall 2018: 10
Fall 2019: 16
Fall 2020: 7
Fall 2021: 4
Fall 2022: 4
Fall 2023: 7
Fall 2024: 9

BAE 4043: In-vehicle Networking (New Course), 2018 – present

Spr 2018: 11
Spr 2019: 7
Spr 2020: 15
Spr 2021: 2
Spr 2022: 2
Spr 2023: 3

AST 1413: Introduction to Engineering in Agriculture (New Course), 2022 – present

Spr 2022: 9
Spr 2023: 11
Spr 2024: 21
Spr 2025: 16

AST 4013: Capstone for Agricultural Systems Technology (New Course), 2022 – present

Fall 2022: 4
Spr 2024: 5
Spr 2025: 12

AST 4200: Technical Graphics and Prototyping in Agriculture (New Course), 2025 – present
Spr 2025: 18

North Carolina State University

BAE 325: Introductory Geomatics, 2012
Laboratory Teaching Assistant: conducted three 165-minute labs each week

BAE 451: Engineering Design I, 2005 – 2013
Teaching Assistant

BAE 452: Engineering Design II, 2005 – 2013
Teaching Assistant

BAE 202: Introduction to Biological and Agricultural Engineering Methods, 2012
Laboratory Teaching Assistant: conducted four 110-minute labs each week

STUDENT ADVISING

***Graduate Advisor* (*non-engineering bachelor's degree)**

Muhammed Usama Yaseen, Ph.D. Biosystems Engineering, January 2023 – Dec 2027 (Expected)
Dissertation Topic: *Directed Energy Systems for Precision Weed Management*

Ni Nyoman Sulastri, Ph.D. Biosystems Engineering, August 2018 – December 2019 (Graduated)
Dissertation Topic: *Development of a Prototype Wheat Crop Residue Burner for Mitigating Controlled Burn Emissions*

*Jordan Fischer, M.S. Biosystems Engineering, August 2016 – June 2019 (Graduated)
Thesis Topic: *Precision Agriculture Technologies for Stocker Cattle Operations*

Matthew Rogers, M.S. Biosystems Engineering, August 2015 – June 2017 (Graduated)
Thesis Topic: *Evaluation of Various Operating Parameters on Agricultural Boomless Nozzle Spray Patterns*

Graduate Committee Member

Sam Akin, Ph.D. Plant and Soil Science, Expected May 2026
Dissertation Topic: *Site-Specific Potassium Management using K-rich Strips*

Jennifer Dudak, Ph.D. Plant and Soil Science, Graduated May 2024
Dissertation Topic: *A Cotton Belt Evaluation of the Efficacy of Isoxaflutole Tank Mix Partners*

Austin Pickering, M.S. Biosystems Engineering, Graduated May 2022
Thesis Topic: *Control System for an Autonomous Rover for Field Applications*

Wade Young, M.S. Biosystems Engineering, Graduated May 2022
Thesis Topic: *Development of a UAV and Image Processing Techniques for Agricultural Applications*

Peyman Nematzadeh, Ph.D. Biosystems Engineering, Graduate Summer 2022
Dissertation Topic: *Developing an In-Field, Image-Based Turfgrass Evaluation System*

Cayden Catlin, M.S. Plant and Soil Science, Graduated Dec 2021
Thesis Topic: *Boll Opening Efficacy as Influenced by Cotton Maturity*

Brent Ballagh, M.S. Plant and Soil Science, Graduated Dec 2018
Thesis Topic: *Winter Wheat Response to Topdress Nitrogen Application Method and Source*

Victor Bodnar, M.S. Plant and Soil Science, Graduated Dec 2017
Thesis Topic: *Use of Late-Season Herbicides on Winter Canola (Brassica napus) and Its Impact on Yield and Seed Quality*

Student Club Advisor
OSU Cowboy Motorsports, Faculty Advisor, August 2014 – present

NCSU Pack Pullers, Graduate Advisor, August 2010 – July 2014

Student Design Project Mentoring
1. *CropHawk: An automated UAV Crop Scouting Platform*, Oklahoma State, Spring 2025.
2. *Drone Deck Trailers: A support trailer for Unmanned Aerial Application Systems (UAAS),* Oklahoma State, Spring 2025.
3. *AeroRanch Tech: A First Person View (FPV) for livestock management*, Oklahoma State, Spring 2025.
4. *Grain Yield Simulator for Classroom Instruction*, Oklahoma State, 2024-2025.
5. *Biochar Reactor for Soil Amendment*, Oklahoma State, 2024-2025.
6. *Autonomous Underground Pipe Mapping System*, Oklahoma State, 2024-2025.
7. *Mobile Peanut Thresher*, Oklahoma State, 2024-2025.
8. *Application of a mobile LiDAR system for crop mapping*, Oklahoma State, Spring 2024.
9. *FarmBot: a CNC gantry for small scale vegetable production*, Oklahoma State, Spring 2024.
10. *Design of a Weather and Crop Monitoring Wireless Sensor System*, Oklahoma State, 2023-2024.
11. *Design of a Small-Scale Air Blast Pecan Cleaner*, Oklahoma State, 2023-2024.

12. *Tethered UAV Sprayer*, Oklahoma State, 2022-2023
13. *3D Low-Cost Home Printing Interdisciplinary Team,* Oklahoma State, Spring 2021
14. *Design of an Environmental Education Trailer,* Oklahoma State, 2020 – 2021
15. *Redesign of a Downhole Water-well Drill,* Oklahoma State, 2020 – 2021
16. *Small ATV/UTV Pulled Conservation Seed Drill,* Oklahoma State, 2019 – 2020
17. *A Computer Controlled Progressive Weight Vehicle Test Sled*, Oklahoma State, 2019 – 2020
18. *Development of a UAV "crop duster" or drone sprayer*, Oklahoma State, 2018 – 2019
19. *Design of a Trailer-Mounted Cleaning Device for Pervious Pavement*, Oklahoma State, 2017 – 2018
20. *MacDon Three-point Mounting Attachment*, Oklahoma State, 2017 – 2018
21. *Capstan Digital Rotameter Design and Validation*, Oklahoma State, 2017 – 2018
22. *ASABE ¼ Scale Tractor – Electrical-Mechanical Hybrid Drivetrain*, Oklahoma State, 2017 – 2018
23. *Ditchwitch Self-Contained Trailer Drive System,* Oklahoma State, 2016 – 2017
24. *ASABE ¼ Scale Tractor – Frame, Suspension, Steering,* Oklahoma State, 2016 – 2017
25. *Planter Downforce Load Pin Calibration Study,* Oklahoma State, Spring 2016
26. *Agricultural Sprayer Nozzle Static Testing,* Oklahoma State, Spring 2016
27. *Capstan Seed-Squirter Calibration,* Oklahoma State, 2015 – 2016
28. *Center Lifting Trailer Floor,* Oklahoma State, 2015 – 2016
29. *Develop and Build a Swather Implement Mounting Attachment,* Oklahoma State, 2015 – 2016
30. *Evaluating Planter Performance: a Study of Vibration Data,* Oklahoma State, Spring 2015
31. *Sprayer Boom Height Control,* Oklahoma State, Spring 2015
32. *Orchard Sprayer Performance Evaluation,* Oklahoma State, Spring 2015
33. *X-Hab Challenge: Deployable Greenhouse for Food Production,* Oklahoma State, 2014 – 2015
34. *Oil Workover Rig Mast Test Design,* Oklahoma State, 2014 – 2015

35. *Wheel Width Adjustment System for Self-Propelled Windrowers,* Oklahoma State, 2014 – 2015

36. *Heating and Cooling of Greenhouse Raised Beds,* Oklahoma State, 2014 – 2015

37. *Runoff Drainage System Design,* Oklahoma State, 2014 – 2015

38. *ASABE ¼ Scale Tractor Testing and Evaluation,* North Carolina State, 2010 – 2011

39. *Automated Soil Sampler,* North Carolina State, 2010 – 2011

40. *Carbon Neutral Weed Suppression System,* North Carolina State, 2010 – 2011

41. *Component Pulling Tractor Chassis,* North Carolina State, 2010 – 2011

42. *Mobile Automated Biofilter for Mitigating Air Pollutants,* North Carolina State, 2009 – 2010

43. *Utility Vehicle Maintenance Lift Table,* North Carolina State, 2008 – 2009

44. *Low Impact Self-propelled Planter for Small Scale Crop Production in High Residue Field Conditions,* North Carolina State, 2007 – 2009

45. *Progressive Weight Tractor Testing Sled,* North Carolina State, 2005 – 2006

FUNDED RESEARCH

SAM Initiative: Achieving Subsurface Application of Manures in the Chesapeake Bay Basin. **J. M. Long.** Subaward via University of Maryland, College Park, MD. Awarded Amount: $186,279. 6/2013 – 8/2017.

Head-to-Head Comparison of Soil Sensor Systems. P. Weckler, B. Arnall, and **J. M. Long.** AGCO Corporation. Awarded Amount: $30,161. 10/2016 – 9/2018.

Precision Planting Technologies for Improving Cotton Emergence in Oklahoma. **J. M. Long.** Oklahoma State Support Program Cotton Incorporated. Award Amount: $12,000. 1/2020 – 12/2020.

Central Asia University Partnerships (UniCEN) Program – Uzbekistan. **J. M. Long**., P. Weckler and C. Jones. American Councils for International Education. Awarded Amount: $22,500. 1/2020 – 6/2021.

Precision Planting Technologies for Improving Cotton Emergence in Oklahoma. **J. M. Long.** Oklahoma State Support Program Cotton Incorporated. Award Amount: $12,500. 1/2021 – 12/2021.

Precision Planting Technologies for Improving Cotton Emergence in Oklahoma. **J. M. Long.** Oklahoma State Support Program Cotton Incorporated. Award Amount: $13,777. 1/2022 – 12/2022.

Engaging Engineering and Technology Students in Precision Agriculture. **J. M. Long** and D. Bellmer. CHS Foundation University Partner Competitive Grant Program. Award Amount: $246,422. 1/2022 – 12/2023.

Precision Planting Technologies for Improving Cotton Emergence in Oklahoma. **J. M. Long.** Oklahoma State Support Program Cotton Incorporated. Award Amount: $14,623. 1/2023 – 12/2023.

Precision Planting Technologies for Improving Cotton Emergence in Oklahoma. **J. M. Long.** Oklahoma State Support Program Cotton Incorporated. Award Amount: $14,780. 1/2024 – 12/2024.

Precision Planting Technologies for Improving Cotton Emergence in Oklahoma. **J. M. Long.** Oklahoma State Support Program Cotton Incorporated. Award Amount: $15,280. 1/2025 – 12/2025.

Use of Biochar as a Soil Amendment for the Ornamental, Vegetable, and Turf Industry. 2025. B. Dunn, C. Fontanier, T. Mason, and J. Long. OK Dept of Ag, Food & Forestry. Awarded Amount: $99,939.

EXTERNAL REVIEWS

Manuscript Peer Reviewer
Energy for Sustainable Development
Applied Engineering in Agriculture
Transactions of the ASABE
American Society for Engineering Educators
Energies
Sustainability
Agriculture
Computers and Electronics in Agriculture

Competition Judge
Engineering Judge – Oklahoma State University Homecoming Greek "House Dec", 2022, 2024
North Carolina State FFA Agricultural Mechanics, 2008 – 2012
North Carolina 4-H State Congress Wheels and Engines Division, 2008 – 2012
North Carolina 4-H State Congress Electrical Division, 2008 – 2012

PROFESSIONAL AFFILIATIONS

American Society of Agricultural and Biological Engineers
American Society for Engineering Educators
Professional Engineering Institute of ASABE

NATIONAL PROFESSIONAL SERVICE

Member, ITSC-318: Mechatronics & Robotics, ASABE, 2024-present
Chair, EOPD-01: Executive/Steering Committee, ASABE, 2023 - 2025
Member, MS-49 subcommittee for revision of the ASAE D497.7 (X497.8), 2019 - present
Member, M-165: Pharos of Alexandria Global Learning Award Committee, ASABE, 2019 – present.
Member, MS-23/7/3: Cotton Engineering Committee, ASABE, 2019 – present
Member, MS-54: Precision Agriculture Committee, ASABE, 2015 – present.
Member, MS-49: Crop Production Systems, Machinery, and Logistics Committee, ASABE, 2015 – present.
Member, EOPD-203: Undergraduate and Graduate Instruction, ASABE, 2014 – present.
Chair, MS-49: Crop Production Systems, Machinery, and Logistics Committee, ASABE, 2020-2021
Chair, EOPD-203: Undergraduate and Graduate Instruction, ASABE, 2020 – 2021.
Vice Chair, MS-49: Crop Production Systems, Machinery, and Logistics Committee, ASABE, 2019-2020
Past Chair, Oklahoma Section, ASABE, 2019 – 2020
Secretary, MS-49: Crop Production Systems, Machinery, and Logistics Committee, ASABE, 2018-2019.
Chair, Oklahoma Section, ASABE, 2018 – 2019.
Chair Elect, Oklahoma Section, ASABE, 2017 – 2018.
Vice-Chair, Oklahoma Section, ASABE, 2016 – 2017.
Secretary-Treasurer, Oklahoma Section, ASABE, 2015 – 2016.
President, Southeastern Region Preprofessional Community, ASABE, 2004 – 2005.

UNIVERSITY PROFESSIONAL SERVICE

Unit	Committee/Organization	Position	Year
OSU DASNR	Undergraduate Advising Coordinators	Member	2019 – present
OSU DASNR	Ferguson College of Ag Curriculum & Academic Standards	Member	2023 – present
OSU DASNR	Ferguson College of Ag Effective Teaching	Member	2024 – present

OSU DASNR	Soil Fertility Research & Education Advisory Board	Member	2019 – present
OSU DASNR	Faculty Space Advisory Committee New Frontiers Ag Hall	Member	2023 – 2024
OSU DASNR	DASNR Video Policy Committee	Member	2017 – 2019
OSU DASNR	DASNR Faculty Council	Member	2017 – 2019
OSU CEAT	Oversight for Statics/Strengths/Dynamics	Member	2020 - present
OSU CEAT	College of Engineering, Architecture, and Technology Academic Council	Member	2023 - present
OSU BAE	Search & Screen Academic Coordinator	Chair	2023 – 2023
OSU BAE	Search & Screen AST Faculty	Member	2021 – 2022
OSU BAE	Dept Head Search & Screen	Member	2019 – 2020
OSU BAE	Ag Systems Technology Development	Chair	2018 – 2020
OSU BAE	Engineering Curriculum Ad Hoc	Member	2016 – 2017
OSU BAE	ABET & Undergrad Curriculum	Chair	2014 - present
OSU BAE	Undergraduate Advising	Chair	2020 - present
OSU BAE	Reappointment, Promotion, Tenure and Cumulative Review	Member (elected)	2015, 2018, 2021-2023
OSU BAE	Digital Marketing/Presence	Member	2015 – present
NCSU BAE	Graduate Student Association	President Secretary	2011 2006
NCSU BAE	Pack Pullers ¼ Scale Tractor Team	Member Captain	2003 – 2010 2004 – 2005
NCSU BAE	ASABE Student Chapter	Member President	2003 – 2010 2004 – 2005

PUBLICATIONS (*first author is my graduate student; †from a course project)

Theses

1. **Long, J. M.** 2014. Development of a Charcoal Slurry for Compression Ignition Internal Combustion Engines. Ph.D. Dissertation, Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, NC

2. **Long, J. M.** 2008. Research on a Post-Frame Burley Tobacco Curing Structure for Wire-Frame racks. Master's Thesis, Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, NC

Refereed Journal Articles

3. *Yaseen, M.U., and J.M. Long. 2024. Laser Weeding Technology in Cropping Systems: A Comprehensive Review. *Agronomy*. 14(10):2253. https://doi.org/10.3390/agronomy14102253

4. *Yaseen, M.U., S. Ahmad, M. Ahmad, **J.M. Long**, H.A. Raza, H. Iftekhar, S. Ameer, and D. Ogunbiyi. 2024. A Multi-Function Novel Crop Seeder for the Management of Residues and Mechanized Sowing of Wheat in a Single Path. *AgriEngineering.* 6(3):2445-2469 https://doi.org/10.3390/agriengineering6030143

5. Bai, H., N. Wang, **J. Long**. 2024. Image-based Corn Seed Embryo Orientation Detection and Adjustment for Precision Planting. *Computers and Electronics in Agriculture.* 224(109139) https://doi.org/10.1016/j.compag.2024.109139.

6. *Sulastri, N., **J. Long**, M. Buser, and P. Funk. 2021. Gas Emission Study of a Crop Residue Burning Machine. *IOP Conf. Ser.: Earth Environ. Sci.* 724(012052) http://dx.doi.org/10.1088/1755-1315/724/1/012052

7. *Sulastri, N., R. Holcomb, **J. Long**, and M. Buser. 2021. Cost Estimation of Crop Residue Burning Machine. *IOP Conf. Ser.: Earth Environ. Sci.* 686(012012) http://dx.doi.org/10.1088/1755-1315/686/1/012012

8. Zhai, C., **J. Long**, R. Taylor, P. Weckler, and N. Wang. 2020. Field Scale Row Unit Vibration Affecting Planting Quality. *Precision Agriculture.* https://doi.org/10.1007/s11119-019-09684-4

9. Zhai, C., C. Zhao, N. Wang, **J. Long**, X. Wang, P. Wecker and H. Zhang. 2018. Research Progress on Precision Control Methods of Air-assisted Spraying in Orchards. *Transactions of the Chinese Society of Agricultural Engineering*. 34(10):1-15.

10. Yang, S., C. Zhai, **J. Long**, B. Zhang and H. Li. 2018. Wolfberry Tree Dual-Model Detection Method and Orchard Target-Oriented Fertilization System Based on Photoelectric Sensors. *International Journal of Agricultural and Biological Engineering.* 11(4):65-73.

11. Zhai, C., S. Xu, **J. Long**, H. Li, B. Zhang and R. Zhu. 2018. Optimization Design of Orchard Air-assisted Sprayer and Mathematical Model for Spray Height Control. *Journal of Northwest A&F University (Nat. Sci. Ed.).* 46(9):148-154.

12. **Long, J. M.** and M. D. Boyette. 2017. Analysis of Micronized Charcoal for Use in a Liquid Fuel Slurry. Energies. 10(1):25-35.

13. **Long, J. M.** and M. D. Boyette. 2012. Design of a post-frame burley tobacco curing structure for wire-frame racks. Tobacco Science. 49:31-40.

14. Boaz, R. D., M. D. Boyette, and **J. M. Long.** 2011. Design of a pneumatic baling system for burley and flue-cured tobacco. Tobacco Science. 48:20-31.

Textbooks

15. Field, H. and **J. M. Long.** 2018. *Introduction to Agricultural Engineering Technology: A Problem Solving Approach.* (4th ed.) Cham, Switzerland: Springer Nature

Extension Fact Sheets and Publications

16. Andrade-Sanchez, P., **J. Long**, W. Porter and W. Lowe. 2023. Precision Planter Components and Their Effects on Cotton Seed Placement and Emergence: Part 2 – Planning for Planting Operations; Seed Monitoring and Delivery; Opening and Closing Systems; and Reporting Options. Cary, NC: Cotton Incorporated <https://cottoncultivated.cottoninc.com/precision-planter-components-part-2/>
17. Porter, W., P. Andrade-Sanchez, **J. Long**, W. Lowe, and E. Barnes. 2023. Precision Planter Components and Their Effects on Cotton Seed Placement and Emergence: Part 1 – Seed Metering, Downforce Control and Depth Control. Cary, NC: Cotton Incorporated <https://cottoncultivated.cottoninc.com/precision-planter-components-part-1-seed-metering-downforce-control-and-depth-control/>
18. **Long, J. M.** 2021. Chapter 2: Equipment and Application. In 2022 OSU Extension Agents' Handbook of Insect, Plant Disease, and Weed Control, E-832. Stillwater, OK: Oklahoma Cooperative Extension Service
19. **Long, J.M.** 2021. Calibrating a Low-Pressure Ground Sprayer: Boom-Mounted Nozzles, BAE-1294. Stillwater, OK: Oklahoma Cooperative Extension Service
20. **Long, J. M.** 2019. Chapter 2: Equipment and Application. In 2020 OSU Extension Agents' Handbook of Insect, Plant Disease, and Weed Control, E-832. Stillwater, OK: Oklahoma Cooperative Extension Service
21. **Long, J. M.** 2018. Chapter 2: Equipment and Application. In 2019 OSU Extension Agents' Handbook of Insect, Plant Disease, and Weed Control, E-832. Stillwater, OK: Oklahoma Cooperative Extension Service
22. **Long, J. M.** 2018. Using Water to Calibrate Sprayers for Fertilizers and Other Liquid Solutions, BAE-1293. Stillwater, OK: Oklahoma Cooperative Extension Service.

23. **Long, J. M.** 2017. Chapter 2: Equipment and Application. In 2018 OSU Extension Agents' Handbook of Insect, Plant Disease, and Weed Control, E-832. Stillwater, OK: Oklahoma Cooperative Extension Service
24. **Long, J. M.** 2017. Selecting the Proper GPS Guidance System for your Operation, BAE-1766. Stillwater, OK: Oklahoma Cooperative Extension Service.

Popular Press Articles (*cover page featured)

25. ***Long, J. M.** 2016. *Forces Changing the Way We Farm*. Progressive Forage. Jerome, ID <http://www.progressiveforage.com/forage-production/management/forces-changing-the-way-we-farm>.

Extension Presentations

26. Drone and Pesticide Applicator Conference. 2025. *Aerial Applicator Rules and Regulations*. Eastern Oklahoma State College. Wilburton, OK. May 7th.
27. Pecan Management Class. 2025. Presentation and workshop: *Pecan Sprayer Calibration in the Orchard.* Cimmaron Valley Research Station. Perkins, OK. May 6th.
28. NE District Ag In-service. 2025. *Drones in Agriculture.* Hampton Inn. Muskogee, OK. April 16th.
29. Cotton County Pasture Meeting. 2025. *Calibrating Your Sprayer Boom, Boomless and More*. Cotton County Fairgrounds. Walters, OK. April 8th.
30. Cotton County Pasture Meeting. 2025. *Drone Applications and Regulations*. Cotton County Fairgrounds. Walters, OK. April 8th.
31. Second Annual Okfuskee County Spring Pesticide Applicators Event. 2025. *Drone Applications and Regulations*. Okfuskee County Fairgrounds. Okemah, OK. April 8th.
32. Drones 101. 2025. *Laws and Regulations for Unmanned Aerial Applicators*. Carnegie Cotton Gin. Carnegie, OK. March 28th.
33. Statewide Pesticide Training Webinar. 2024. *Drone Applications and Regulations*. Virtual. December 19th.
34. 103rd State 4-H Roundup. 2024. 60-minute workshop entitled: *Autonomous Smart Farming Basics: Programming Microcontrollers for Soil Moisture Monitoring*. (20 attendees) Stillwater, OK. July 25th
35. Pecan Management Class. 2024. Presentation and workshop: *Pecan Sprayer Calibration in the Orchard.* Cimmaron Valley Research Station. Perkins, OK. May 7th.
36. Oklahoma Agricultural Aviation Association Annual Meeting. 2024. Invited Panelist. *Unmanned Application Technologies*. Embassy Suites Conference Center. Norman, OK. January 14th.
37. Winter Crop School. 2023. Invited speaker. Presentation: *Advances in Sprayer Technologies: See it. Spray it. Repeat*. OSU Student Union. Stillwater, OK. Dec 20th.
38. Poultry Waste Applicator Continuing Education Course. 2023. Presentation: *Guidance Systems for Applicators*. OSU Extension Office. Claremore, OK. December 5th.

39. Statewide Pesticide Training Webinar. 2023. *Proper Sprayer Cleanout*. Virtual. November 30th.
40. SUNUP TV. 2023. Invited speaker. Segment on proper winterization of agricultural equipment. Agronomy Research Station. Stillwater, OK. November 20th.
41. Poultry Waste Applicator Continuing Education Course. 2023. Presentation: *Guidance Systems for Applicators*. Indian Capital Technology Center. Stillwell, OK. November 6th.
42. Statewide Pesticide Training Webinar. 2023. *New Sprayer Technologies*. Virtual. October 10th.
43. Pecan Management Class. 2023. Presentation and workshop: *Pecan Sprayer Calibration in the Orchard.* Cimmaron Valley Research Station. Perkins, OK. May 9th.
44. McCurtain County Poultry Litter and Pesticide Applicator Field Day. 2023. Demonstration and Presentation: *Guidance Systems for Applicators*. McCurtain County Fairgrounds. Idabel, OK. May 5th.
45. Poultry Waste Applicator Continuing Education Course. 2023. Presentation: *Guidance Systems for Applicators*. Delaware County Fairgrounds. Jay, OK. May 2nd.
46. Grape Management Short Course. 2023. Presentation: *Calibrating Sprayers*. Cimmaron Valley Research Station. Perkins, OK. April 6th.
47. Cimarron Ag Conference. 2023. Presentation: *Calibrating Sprayers – Boom, Boomless and More!* Noble County Fairgrounds. Perry, OK. April 4th.
48. SE Oklahoma Turfgrass and Landscape Maintenance Program. 2023. Presentation: *Sprayer Calibration for Lawn and Landscapes.* Murray State College. Tishomingo, OK. February 23rd.
49. Pecan Pest Management Workshop. 2023. Presentation: *New Sprayer Technologies*. Gordon Cooper Technology Center. Shawnee, OK. February 21st.
50. Proper Use of Pesticide Application Equipment Webinar. 2022. *Spray System Clean-Out and Calibration.* Virtual. December 6th.
51. Proper Use of Pesticide Application Equipment Webinar. 2022. *Calibrating Sprayers – Boomed, Boomless, and Newer Sprayers*. Virtual. November 17th.
52. Southeast District Ag Educators In-service. 2022. Unveiling the New Sprayer Demonstration Units. Shawnee, OK. November 9th.
53. Step 2 New Ag Educator Training. 2022. Sprayer Demonstrations for Extension Programs. Stillwater, OK. November 2nd.
54. 101st State 4-H Roundup. 2022. 120-minute workshop entitled: *Autonomous Agricultural Robotics*. (9 attendees) Stillwater, OK. July 27th.
55. BAE Inservice. 2022. Presentation: *Global Positioning Systems: How it Works and How to Make It Work for You.* Virtual. June 24th.
56. Pecan Management Class. 2022. Presentation and workshop: *Calibration of Airblast Sprayers in the Pecan Orchard.* Cimmaron Valley Research Station. Perkins, OK. May 10th.
57. Oklahoma Gardening TV. 2022. Broadcast segment on fall mower maintenance. Biosystems and Agricultural Engineering Laboratory. Stillwater, OK. Aired April 2nd.

58. Kay County Dicamba Training. 2022. *Fundamentals of Sprayer Nozzles and Drift Control*. Blackwell, OK. March 8th.
59. Oklahoma Farm Bureau Annual Meeting. 2021. *Proper Spray Equipment Setup and Cleanout.* Norman, OK. November 5th.
60. NE District Ag In-service. 2021. Presentation and workshop: *DIY Rope Wick Bar Clinic.* Cross Timbers Research Station. Stillwater, OK. June 8th.
61. Pecan Management Class. 2021. Presentation and workshop: *Boom Mounted Nozzles and Airblast Sprayer Calibration for Pecan Orchards*. Cimmaron Valley Research Station. Perkins, OK. May 4th.
62. Pecan Topics Webinar. 2021. *Sprayer Calibration.* Virtual. March 12th.
63. Red River Crops Conference. 2021. *Cotton Equipment Technology: Improving Emergence.* Virtual. January 20th – 21st
64. Kansas Commercial Applicator Training Program. 2020. *Fundamentals of Sprayer Nozzles & Drift Control.* Virtual. November 13th.
65. Cotton Webinar – Late Season Management. 2020. *Application Technologies for Late Season Management*. Virtual. September 17th.
66. 99th State 4-H Roundup. 2020. One virtual workshop entitled: *Autonomous Agricultural Robotics*. (97 attendees) Stillwater, OK. July 22nd.
67. Southeast Oklahoma District Ag Agents Inservice. 2019. Presentation and Demo: GPS Guidance Systems. Lane Experiment Station. Lane, OK. November 21st.
68. SUNUP TV. 2019. Invited speaker. Segment on going back to older technologies. Agronomy Research Station. Stillwater, OK. November 2nd.
69. 98th State 4-H Roundup. 2019. Two 120-minute workshops entitled: *Autonomous Agricultural Robotics*. (32 attendees) Stillwater, OK. July 24th – 25th.
70. North Central Research Station Field Day. 2019. Presentation: *Cotton Management in Northern Oklahoma*. North Central Research Station. Lahoma, OK. May 10th.
71. Pasture Pointers. 2019. Demonstration and use of pocket calibration cards on boom and boomless sprayers used in pastures. Payne County Expo Center. Stillwater, OK. April 11th.
72. SE Oklahoma Turfgrass and Landscape Maintenance Program. 2019. Presentation: *Fundamentals of Sprayer Nozzles and Drift Control.* OSU-Institute for Agriculture Biosciences. Ardmore, OK. February 13th.
73. Oklahoma Turfgrass Conference and Trade Show. 2018. Presentation: *Sprayer Nozzle Selection and Drift*. Tulsa Tech – Owasso Campus. Owasso, OK. November 28th.
74. Herbicide Symptomology Clinic. 2018. Presentation and demonstration of calibration using water for liquid fertilizer application. Agronomy Research Station. Stillwater, OK. October 26th.
75. Agronomic Fall Agronomic In-Service. 2018. Presentation: *Boomless Sprayer Update*. Agronomy Research Station. Stillwater, OK. October 12th.

76. Turfgrass and Ornamental Pesticide CEU Workshop. 2018. Demonstration and Presentation: *Fundamentals of Sprayer Nozzles and Drift Control*. Garfield County Extension Office. Enid, OK. October 12th.
77. Kids, Kows and More. 2018. Demonstration and presentation on new ag technologies including UAV, remote sensing and machine learning. Pontotoc County Agri-Plex. Ada, OK. September 20th.
78. SUNUP TV. 2018. Invited speaker. Segment on sprayer nozzle technologies. Biosystems and Agricultural Engineering Lab. Stillwater, OK. July 25th.
79. Oklahoma 4H/FFA Wheat Contest. 2018. Demonstration of sprayer nozzle technologies. Payne County Fairgrounds. Stillwater, OK. July 24th.
80. Applicator Field Day. 2018. Demonstrated boom and boomless sprayer calibration. Cimarron Valley Research Station. Perkins, OK. May 4th.
81. 12th Annual Eastern Oklahoma Ag Trade Show. 2018. Demonstration and Presentation: *Spreader Technology Update and GPS Guidance Systems*. LeFlore County Fairgrounds. Poteau, OK. April 24th.
82. Poultry Waste Applicator Field Day. 2018. Demonstration and Presentation: *Spreader Technology Update and GPS Guidance Systems*. Mac Lindley Research and Demonstration Farm. Valliant, OK. April 20th.
83. Applicator Field Day. 2018. Demonstration and Presentation: *Spreader Technology Update and GPS Guidance Systems*. Delaware County Fairgrounds. Jay, OK. April 11th.
84. 19th Annual Crop Production Clinic. 2018. Presentation: *Sprayer Technologies*. Hunny's BBQ. Guymon, OK. April 4th.
85. SUNUP TV. 2018. Invited speaker. Segment on right to repair. Agronomy Research Station. Stillwater, OK. June 17th.
86. Eastern Oklahoma Beef Cattle Summit. 2018. Demonstrated pasture sprayer maintenance and calibration. Southeast Oklahoma Expo Center. McAlester, OK. March 29th.
87. Garvin County Herbicide Program. 2018. Presentation: *Proper Spray Equipment Setup and Cleanout*. Garvin County Fairgrounds. Pauls Valley, OK. March 27th.
88. Horse Owner Workshop. 2018. Presentation: *Making Spray Equipment Work for You*. Charles and Linda Cline Equine Teaching Center. Stillwater, OK. March 10th.
89. Horticulture Spray Day. 2018. Demonstration of nozzle technology, selection and drift mitigation. Cimarron Valley Research Station. Perkins, OK. March 8th.
90. Northeast OK Crops Conference. 2018. Presentation: *Sprayer Contamination and Cleanout*. Craig County Fairgrounds. Vinita, OK. February 27th.
91. East Central OK Crops Conference. 2018. Presentation: *Sprayer Contamination and Cleanout*. Connors State College. Warner, OK. February 26th.
92. Kay-Grant County Weed and Herbicide Training Clinic. 2018. Presentation: *Sprayer Contamination and Cleanout*. Kay County Fairgrounds. Blackwell, OK. February 15th.

93. No-till Oklahoma Conference. 2018. Invited speaker. Presentation and demonstration: *Setting up No-till Equipment: Planters and Options*. The Grand Casino Hotel and Resort. Shawnee, OK. February 6th & 7th.
94. Canola College. 2018. Invited speaker. Demonstration of new nozzle technologies through hands on experience in the canola learning lab. Chisholm Trail Expo Center. Enid, OK. January 19th.
95. Oklahoma Agricultural Aviation Association Annual Meeting. 2018. Invited Speaker. *Aerial Application Equipment: Nozzle Selection and Other Considerations*. Embassy Suites Conference Center. Norman, OK. January 15th-17th.
96. Project Spotlight: Subsurface Application of Manures in the Chesapeake Bay Basin. 2017. Invited speaker. Public Webinar highlighting work conducted in Oklahoma related to poultry litter injection technologies. National Fish and Wildlife Foundation. Dec 19th.
97. Winter Crop School. 2017. Invited speaker. Presentation: *Liquid Application Equipment: the more things change, the more they stay the same*. OSU Student Union. Stillwater, OK. Dec 12th.
98. Fall Agronomic In-Service. 2017. Demonstration and workshop focused on boomless nozzle calibration. Agronomy Research Station. Stillwater, OK. November 3rd.
99. Herbicide Symptomology Clinic. 2017. Invited speaker. Presentation and demonstration of tank contamination and proper cleanout. Agronomy Research Station. Stillwater, OK. November 3rd.
100. Next Steps for Poultry Litter Injection Technology Development Workshop and Field Demonstration. 2017. Invited speaker. Presentation and demonstration: *Subsurface Application of Manure: Vision for the Future*. Wye Research and Education Center. Queenstown, MD. July 6th.
101. SUNUP TV. 2017. Invited speaker. Segment on combine fire prevention, safety and preparedness. Agronomy Research Station. Stillwater, OK. June 17th.
102. 125th Harvest of Magruder Plots Field Day. 2017. Invited speaker. Presentation and demonstration: *Mitigating Drift and Spray Tank Contamination*. Agronomy Research Station. Stillwater, OK. May 19th.
103. SW District: New Row Crop Traits & Herbicide Technologies. 2017. Invited speaker. Presentation and demonstration of spray nozzle selection and equipment cleanout. Southwest Research & Extension Center. Altus, OK. April 4th.
104. Cotton, New Row Crop Traits, & Herbicide Technologies for Spring Crops. 2017. Invited speaker. Presentation and demonstration of spray nozzle selection and equipment cleanout. Canadian County Fairgrounds Educational Building. El Reno, OK. March 22nd.
105. No-till Oklahoma Conference. 2017. Invited speaker. Presentation and demonstration: *New Herbicide Technologies: Sprayer Tips and Technologies Required*. The Grand Casino Hotel and Resort. Shawnee, OK. March 7th & 8th.

106. NE Oklahoma New Herbicide Technologies. 2017. Invited speaker. Presentation and demonstration of spray nozzle selection and equipment cleanout. Wagoner Co. OSU Extension Office. Coweta, OK. March 6th.
107. NW District: New Row Crop Traits & Herbicide Technologies. 2017. Invited speaker. Presentation and demonstration of spray nozzle selection and equipment cleanout. OSU North Central Research Station. Lahoma, OK. March 3rd.
108. Canola College. 2017. Invited speaker. Demonstration of new nozzle technologies through hands on experience in the canola learning lab. Chisholm Trail Expo Center. Enid, OK. January 19th.
109. Herbicide Symptomology Clinic. 2016. Invited speaker. Presentation and demonstration of proper nozzle selection for drift reduction. Agronomy Research Station. Stillwater, OK. November 4th.
110. Haskell Field Day. 2016. Invited speaker. Presentation and demonstration of entry level GPS guidance systems for chemical and litter application. Eastern Research Station. Haskell, OK. September 30th.
111. Hughes Co. Hay and Forage Clinic. 2016. Invited speaker. Presentation and demonstration of entry level GPS guidance systems. Holdenville Fairgrounds. Holdenville, OK. March 3rd.
112. Master Cattleman Summit. 2015. Invited speaker. Presentation and demonstration of sprayer technologies for pasture management. Range Cow Research Center. Stillwater, OK. Oct 31st.
113. Bioenergy Field Day. 2010. Invited speaker. Presentation and demonstration: *Gasification/Power Generation: Operation of an Internal Combustion Engine from Charcoal*. Oxford Tobacco Research Station. Oxford, NC. September 30th.
114. Bioenergy Field Day. 2009. Invited speaker. Presentation and demonstration: *Gasification Demonstration, Energy Pellets and Bio-Char*. Williamsdale Farm Agricultural Extension and Research Facility. Wallace, NC. October 1st.
115. Bioenergy Field Day. 2008. Invited speaker. Presentation and demonstration: *Biomass Derived Charcoal for Use as a Fuel Additive*. Williamsdale Farm Agricultural Extension and Research Facility. Wallace, NC. September 27th.

Conference Proceedings and Abstracts

116. **Long, J.** and K. Moore. 2024. *Putting a Cap on a new Agricultural Systems Technology Program: Lessons Learned*. Presented at the ASABE International Meeting. Anaheim, California. July 28th – 31st
117. Yaseen, M. U., and **J. Long**. 2024. *Development and Evaluation of Directed Energy Systems for Precision Weed Control*. Presented at the ASABE International Meeting. Anaheim, California. July 28th – 31st
118. **Long, J.M.** 2024. *An Open-Source Pipeline for Processing Cotton Crop Imagery to Evaluate Application Timing of Harvest Aids.* Presented at the 2024 Beltwide Cotton Conference. Fort Worth, TX. January 3rd – 5th

119. Yaseen, M. U., S. Ahmad, M. Ahmad, **J. Long**, H. A. Raza, H. Iftikhar, and S. Ameer. 2023. *Novel Development of Precision Pak Seeder for the Management of Crop Residue and Mechanized Sowing of Wheat*. Presented at the ASABE International Meeting. Omaha, Nebraska. July 8th – 12th.
120. Young, W., **J. Long**, and S. Byrd. 2023. *An Open-Source Pipeline for Processing Cotton Crop Imagery to Evaluate Application Timing of Harvest Aids in Stripper Cotton.* Presented at the ASABE International Meeting. Omaha, Nebraska. July 8th – 12th.
121. **Long, J. M.** and S. Byrd. 2023. *Assessment of Planting Parameters for Cotton Seed Size Variability*. Presented at the ASABE International Meeting. Omaha, Nebraska. July 8th – 12th.
122. **Long, J.**, N. Wang, Y. Chen. 2023. *Individual Animal Identification in Beef Cattle Using Deep Transfer Learning Technology*. Presented at the Artificial Intelligence in Agriculture Conference. Orlando, Florida. April 17th – 19th.
123. Vitale, J., J. Sadler, and **J. Long**. 2023. *Jump Starting AI Teaching Curriculum at Oklahoma State University's Ferguson College of Agriculture*. Presented at the Artificial Intelligence in Agriculture Conference. Orlando, Florida. April 17th – 19th.
124. **Long, J**. 2021. *Evaluating Soil Electrical Conductivity to Assess Cotton Planting Parameters in Fields with High Variability.* Presented at the ASABE International Meeting. Virtual. July 12th – 16th
125. **Long, J.** 2021. *Adopting Artificial Intelligence Driven Agriculture in a World Market*. Presented at the 2021 International Top-level Forum on Engineering Science and Technology Strategy---Agricultural Sensors & International Conference on Intelligent Agriculture (ICIA2021). Virtual. May 20th – 22nd
126. **Long, J.** 2021. *Using Unmanned Aircraft Systems to Evaluate Application Timing of Harvest Aids in Stripper Cotton*. Presented at the 2021 Southwest Cotton Physiology Meeting. Virtual. February 2nd – 3rd
127. **Long, J.M.**, G. McCullough, S. Byrd. 2021. *Evaluating Planting Parameters for Fields with Highly Variable Soil Electrical Conductivity.* Presented at the 2021 Beltwide Cotton Conference. Virtual. January 5th – 7th
128. Catlin, C., W. Young, B. Wilson, A. Althoff, **J.M. Long**, H. Zhang, B. Weidenmaier, S. Byrd. 2021. *The Influence of Application Timing on Harvest Aid Efficacy and Fiber Quality.* Presented at the 2021 Beltwide Cotton Conference. Virtual. January 5th – 7th
129. *Young, W., C. Catlin, S. Byrd, N. Wang, **J.M. Long**. 2021. *Using Unmanned Aircraft Systems to Evaluate Application Timing of Harvest Aids in Stripper Cotton.* Presented at the 2021 Beltwide Cotton Conference. Virtual. January 5th – 7th
130. **Long, J**. 2020. *Engaging Student Competitiveness Through Technology.* Presented at the ASABE International Meeting. Virtual. July 12th – 15th
131. **Long, J.**, N. Wang, Y. Chen. 2020. *Beef Cattle Face Detection and Recognition Based on Deep Transfer Learning Technology.* Presented at the ASABE International Meeting. Virtual. July 12th – 15th

132. Zhai, C., H. Bai, **J. Long**, N. Wang, P. Weckler and R. Taylor. 2020. *Impacts of Precision Planted and Oriented Corn Seed: A Field Study*. Presented at the ASABE International Meeting. Virtual. July 12th – 15th

133. Weckler, P., **J. Long**, N. Wang, B. Randall, S. Hayward, M. Snell and C. Rufo. 2019. *Development of a Tethered UAV Sprayer.* Presented at the ASABE International Meeting. Boston, Massachusetts. July7th – 10th

134. Chen, Y., **J. Long**, N. Wang and J. Fischer. 2019. *Individual Animal Identification in Beef Cattle Using Machine Learning.* Presented at the ASABE International Meeting. Boston, Massachusetts. July7th – 10th

135. Weckler, P., N. Wang and **J. Long**. 2018. *Teaching In-Vehicle Networking.* Presented at the ASABE International Meeting. Detroit, Michigan. July 29th – Aug 1st

136. Weckler, P., B. Arnall and **J. Long**. 2018. *Head-to-Head Comparision of Soil Sensor Systems*. Presented at the ASABE International Meeting. Detroit, Michigan. July 29th – Aug 1st.

137. **Long, J**. 2018. *Leveraging Asynchronous Learning in an Upper Division Engineering Design Course*. Presented at the ASABE International Meeting. Detroit, Michigan. July 29th – Aug 1st.

138. *Fischer, J. and **J. Long**. 2018. *Development of a Multi-Scale Walkover System for Precision Livestock Management*. Presented at the ASABE International Meeting. Detroit, Michigan. July 29th – Aug 1st.

139. Zhai, C., **J. Long**, R. Taylor, P. Weckler, and N. Wang. 2017. *Field-scale Row Unit Vibration Affecting Planting Quality*. Presented at the ASABE International Meeting. Spokane, Washington. July 16th – 19th.

140. Yang, S., C. Zhai, **J. Long**, B. Zhang, and H. Li. 2017. *Wolfberry Tree Dual-model Detection Method and Orchard Target-oriented Fertilization System Based on Photoelectric Sensors.* Presented at the ASABE International Meeting. Spokane, Washington. July 16th – 19th.

141. †Weckler, P., N. Wang, C. Zhai, L. Zhang, B. Luo, **J. Long**, and R. Taylor. 2016. *Evaluation of a Seed-Fertilizer Application System Using a Laser Scanner.* Presented at the 13th International Conference on Precision Agriculture. St. Louis, Missouri. July 31st – August 4th.

142. **Long, J. M.** and N. Wang. 2016. *Evaluation of a Low-Cost, Single Frequency RTK GPS system*. Presented at the ASABE International Meeting. Orlando, Florida. July 17th – 20th.

143. **Long, J. M.** 2016. *Sprayer Boom Position Measurement for Automatic Boom Height Controller Evaluation.* Presented at the ASABE International Meeting. Orlando, Florida. July 17th – 20th.

144. †*Rogers, M. and C. Craige, K. Moore, **J. M. Long**, and P. Weckler. 2016. *Sprayer Evaluation on Tall Pecan Trees*. Presented at the ASABE International Meeting. Orlando, Florida. July 17th – 20th.

145. *Rogers, M. and **J. M. Long.** 2016. *Evaluation of Wind Effects on Boomless Nozzle Spray Patterns*. Presented at the ASABE International Meeting. Orlando, Florida. July 17th – 20th.

146. Zhai, C., **J. M. Long**, P. Weckler, N. Wang, and R. Taylor. *Investigating Planter Row Unit Ride Quality Thresholds*. Presented at the ASABE International Meeting. Orlando, Florida. July 17th – 20th.

147. **Long, J.M.** and M. D. Boyette. 2015. *Development of a Charcoal Slurry for Compression Ignition Internal Combustion Engines*. Paper No. 152163658. Presented at the ASABE International Meeting. New Orleans, Louisiana. July 26th – 29th.

148. Taylor, R. K., Hanna, H. M., Grisso, R., **Long, J**, and Fulton, J. 2015. *Faster, Wider, or Both – A Look at Planter Trends.* Paper No. 1521498885. Presented at the ASABE International Meeting. New Orleans, Louisiana. July 26th – 29th.

149. **Long, J. M.** and M. D. Boyette. 2011. *Development of a Charcoal Slurry for Low-Speed Diesel Engines: A Preliminary Study*. Paper No. 1111653. Presented at the ASABE International Meeting. Louisville, Kentucky. August 7th – 10th.

150. **Long, J. M.** and M. D. Boyette. 2008. *A Post-Frame Burley Tobacco Curing Structure for Wire-Frame Racks*. Presented at the 43rd Tobacco Worker's Conference. Savannah, Georgia. January 14th – 17th.

Oral Presentations and Invited Talks

151. **Long, J. M.** 2025. *Precision Agriculture Research: Data-Driven Intelligent Ag Technologies.* Presented to Future Point of View Think-tank. Stillwater, OK. May 13th.

152. **Long, J. M.** 2024. *Precision Agriculture Research and Extension*. Presented to the OSU BAE Department Industry Advisory Board. Stillwater, OK. December 6th.

153. **Long, J. M.** 2024. *Unmanned Application Technologies.* Presented at the Oklahoma Ag Expo. Norman, OK. October 29th.

154. **Long, J. M.** 2024. *UNIV 1111: Biosystems Engineering.* Presentation to all summer bridge enrolled engineering freshmen. Stillwater, OK. August 7th.

155. **Long, J. M.** 2024. *CEAT Summer Bridge: Machinery Systems and Agricultural Engineering.* Presentation, Demonstration and Activity for incoming engineering freshmen. Stillwater, OK. July 25th.

156. **Long, J. M.** 2024. *Precision Planting Technologies for Improving Cotton Emergence in Oklahoma*. Presented to the Oklahoma State Support Program Board of Cotton Incorporated. Altus, OK. July 23rd.

157. **Long, J. M.** 2023. *Solving Agricultural Problems through Engineering and Technology*. Keynote Speaker and Demonstrator at the Oklahoma 4-H State Robotics Exploration Day. Stillwater, OK. November 11th.

158. **Long, J. M.** 2023. *Unmanned Application Technologies.* Presented at the Oklahoma Ag Expo. Norman, OK. November 8th.

159. **Long, J. M.** 2023. *Precision Planting Technologies for Improving Cotton Emergence in Oklahoma*. Presented to the Oklahoma State Support Program Board of Cotton Incorporated. Altus, OK. July 20th.

160. **Long, J. M.** 2022. *What is an Engineer?* Presented to Mrs. Johnsen's Kindergarten class at Perkins-Tryon Elementary School. Perkins, OK. November 11th.

161. **Long, J. M.** 2022. *Precision Planting Technologies for Improving Cotton Emergence in Oklahoma*. Presented to the Oklahoma State Support Program Board of Cotton Incorporated. Altus, OK. July 21st.

162. **Long, J.M.** 2022. *MS-49 Crop Production Systems, Machinery, and Logistics*. Presented at the 2022 Agricultural Equipment Technology Conference. Louisville, KY. February 14th.

163. **Long, J. M.** 2021. *Engaging Engineering and Technology Students in Precision Agriculture*. Presented to the OSU BAE Department Industry Advisory Board. Stillwater, OK. December 3rd.

164. **Long, J. M.** 2021. *CEAT Summer Bridge: Machinery Systems and Agricultural Engineering.* Presentation, Demonstration and Activity for incoming engineering freshmen. Stillwater, OK. August 3rd.

165. **Long, J. M.** 2021. *Precision Planting Technologies for Improving Cotton Emergence in Oklahoma*. Presented to the Oklahoma State Support Program Board of Cotton Incorporated. Virtual. July 22nd.

166. **Long, J. M.,** N. Wang. 2021. *CEAT Discovery Days: Machinery Systems and Agricultural Engineering.* Presentation, Demonstration and Activity for high school students interested in engineering. Stillwater, OK. June 18th.

167. **Long, J.** 2021. *Adopting Artificial Intelligence Driven Agriculture in a World Market*. Virtual Keynote Speech at the 2021 International Top-level Forum on Engineering Science and Technology Strategy---Agricultural Sensors & International Conference on Intelligent Agriculture (ICIA2021). Tianjin, China. May 20th – 22nd

168. **Long, J. M.** 2020. *Space: the final frontier and Precision Agriculture*. Presented as an invited talk for OSU BAE Graduate Seminar. Stillwater, OK. November 4th.

169. **Long, J. M**. 2020. *Using Swivl Technology for Hybrid Classrooms*. Presented as a mini training session for BAE instructors. Stillwater, OK. August 10th.

170. **Long, J. M.** 2020. *Precision Planting Technologies for Improving Cotton Emergence in Oklahoma*. Presented to the Oklahoma State Support Program Board of Cotton Incorporated. Virtual. July 23rd.

171. **Long, J. M.** 2020. *Tools for Delivering Virtual Content*. Presented as a demonstration to BAE faculty. Stillwater, OK. March 18th.

172. Haggard, B., J. Crosswhite, D. Shoup and **J. Long**. 2019. *Poll Everywhere, Our In-Class Experience.* Presented as an invited panel at the Fall CASNR Teaching Workshop. Stillwater, OK. August 13th.

173. **Long, J. M.** 2019. *CEAT Summer Bridge: Machinery Systems and Agricultural Engineering.* Presentation, Demonstration and Activity for incoming engineering freshmen. Stillwater, OK. August 1st.

174. **Long, J. M.** 2019. *Precision Planting Technologies for Improving Cotton Emergence in Oklahoma*. Presented to the Oklahoma State Support Program Board of Cotton Incorporated. Altus, OK. July 18th.

175. **Long, J. M.** 2019. *New Degree in Agricultural Systems Technology.* Presented as an invited talk to the Two- and Four-year Colleges and Universities Meeting. Stillwater, OK. May 15th.

176. **Long, J. M.** 2019. *Agricultural Systems Technology*. Presented to the OSU BAE Department Industry Advisory Board. Stillwater, OK. May 3rd.

177. **Long, J. M.** 2018. *Strength of Materials: FE Exam Review Session*. Presented as an invited talk to Biosystems Engineering majors preparing to take the Fundamentals of Engineering exam. Stillwater, OK. November 16th.

178. **Long, J. M.** and P. Weckler. 2018. *CEAT Summer Bridge: Machinery Systems and Agricultural Engineering.* Presentation, Demonstration and Activity for incoming engineering freshmen. Stillwater, OK. August 9th.

179. **Long, J. M.** 2018. *Precision Agriculture: Potential Impacts on Conservation*. Presented as an invited talk at the 2018 Annual Meeting of the Oklahoma Chapter of the Soil and Water Conservation Society. Grove, OK. June 7th.

180. **Long, J. M.** 2018. *Machinery Systems: Teaching, Research and Extension*. Presented as an OSU BAE Department Industry Advisory Board Invited Talk. Stillwater, OK. May 4th.

181. **Long, J. M.** 2017. *Agricultural Spray Equipment and Technologies*. Presented as an invited talk for Plant and Soil Science Graduate Seminar. Stillwater, OK. November 20th.

182. **Long, J. M.** 2017. *BAE Precision Ag and Machinery Systems.* Presented as an invited talk at the USDA-ARS Grazinglands Research Laboratory. El Reno, OK. February 16th.

183. **Long, J. M.** 2016. *Precision Ag and Machinery Systems Research, Teaching and Extension Activities.* Presented as an invited talk for OSU Student Chapter of ASABE. Stillwater, OK. November 1st.

184. **Long, J. M.** and S. Taghvaeian. 2016. *Applying and Interviewing for a Faculty Position*. Presented as an OSU BAE Graduate Invited Seminar. Stillwater, OK. September 28th.

185. **Long, J. M.** 2016. *Leveraging Co-Curricular Activities to Prepare Future Engineers for the Workforce*. Presented an invited talk at the Oklahoma ASABE State Section Annual Meeting. Stillwater, OK. February 26th.

186. **Long, J. M.** 2015. *Intelligent Technologies for Pasture and Livestock Systems*. Presented as an invited talk for OSU BAE Graduate Seminar. Stillwater, OK. November 4th.

187. **Long, J. M.** 2015. *Innovations in Pasture Sprayer Technology*. Presented at the Master Cattleman Summit. Stillwater, OK. October 31st.

188. **Long, J. M.** 2015. *Proposed Biomechanical Research and Teaching Programs*. Presented as an OSU BAE Departmental Invited Talk. Stillwater, OK. May 1st.
189. **Long, J. M.** 2014. *Development of a Charcoal Slurry for Compression Ignition Internal Combustion Engines*. Presented as a NCSU BAE Departmental Seminar. Raleigh, NC. July 11th.
190. Boaz, R. D., M. P. Jones and **J. M. Long**. 2007. *Semi-Automated Conversion of Waste Vegetable Oil to Biodiesel.* Presented at the Congressional Tour of Biological and Agricultural Engineering's Biofuels Program. March 12th.
191. Boaz, R. D., E. L. Harrell, M. P. Jones and **J. M. Long**. 2005. *Semi-Automated Conversion of Waste Vegetable Oil to Biodiesel.* Presented at the 14th Annual NC State University Undergraduate Research Symposium. April 28th.

Guest Lectures

192. *Machine Systems & Agricultural Engineering Option* (two 110-minute labs). Fall 2024
BAE 1011 – Introduction to Biosystems Engineering. Stillwater, OK.
193. *Spray Systems and Equipment* (50-minute lecture video). Fall 2020.
PLNT 4013 – Principles of Weed Science. Stillwater, OK.
194. *Yield Monitors* (50-minute lecture). Fall 2020.
SOIL 4213 – Precision Agriculture. Stillwater, OK.
195. *Surveying: A Bird's Eye View* (50-minute lecture/two 110-minute labs). Spring 2020.
BAE 1022 – Experimental Methods in Biosystems Engineering. Stillwater, OK.
196. *Tractor Testing* (50-minute lecture/110-minute lab). Spring 2020.
BAE 3213 – Energy and Power. Stillwater, OK.
197. *Spray Systems and Equipment* (two 50-minute lectures/two 50-minute labs). Fall 2019.
PLNT 4013 – Principles of Weed Science. Stillwater, OK
198. *Surveying: A Bird's Eye View* (50-minute lecture/two 110-minute labs). Spring 2019.
BAE 1022 – Experimental Methods in Biosystems Engineering. Stillwater, OK.
199. *A Guide to the SI System* (50-minute lecture). Fall 2018.
BAE 3213 – Energy and Power. Stillwater, OK.
200. *Tractor Testing* (50-minute lecture). Fall 2018.
BAE 3213 – Energy and Power. Stillwater, OK.
201. *Spray Systems and Equipment* (two 50-minute lectures/two 50-minute labs). Fall 2018.
PLNT 4013 – Principles of Weed Science. Stillwater, OK
202. *Surveying: A Bird's Eye View* (50-minute lecture/two 110-minute labs). Spring 2018.
BAE 1022 – Experimental Methods in Biosystems Engineering. Stillwater, OK.
203. *Spray Systems and Equipment* (two 50-minute lectures). Fall 2017.
PLNT 4013 – Principles of Weed Science. Stillwater, OK
204. *Precision Liquid Application Equipment* (50-minute lecture). Spring 2017.
SOIL 4213 – Precision Agriculture. Stillwater, OK.
205. *Yield Monitors* (50-minute lecture). Spring 2017.
SOIL 4213 – Precision Agriculture. Stillwater, OK.

206. *Surveying: A Bird's Eye View* (50-minute lecture/two 110-minute labs). Spring 2017.
BAE 1022 – Experimental Methods in Biosystems Engineering. Stillwater, OK.
207. *Spray Systems and Equipment* (two 50-minute lectures). Fall 2016.
PLNT 4013 – Principles of Weed Science. Stillwater, OK.
208. *Introduction to Fluid Power Systems* (50-minute lecture). Spring 2016
BAE 3213 – Energy and Power. Stillwater, OK
209. *Agriculture's Contract with Society* (50-minute lecture). Spring 2010
BAE 442 – Systems Approach to Agricultural and Environmental Issues
210. *Burley Tobacco Mechanization Research at NCSU* (50-minute lecture). Spring 2009
BAE 442 – Systems Approach to Agricultural and Environmental Issues
211. *Physical Properties of Biomaterials* (50-minute lecture/three 110-minute labs). Spring 2009.
BAE 315 – Properties of Biological Engineering Materials
212. *Physical Properties of Biomaterials* (50-minute lecture/three 110-minute labs). Spring 2006.
BAE 315 – Properties of Biological Engineering Materials

PROFESSIONAL CONSULTING

1. *Deere & Company and John Deere Shared Services, Inc vs. Kinze Manufacturing, Inc. and Ag Leader Technology, Inc.* [US District Court for S. Iowa: 4:20-cv-00389] Expert Witness (2023: Expert Reports, Deposition and Trial Testimony)
2. *J&M Manufacturing Company, Inc. vs. Kinze Manufacturing, Inc.* [US District Court for N. Iowa: 1:22-cv-94] Expert Witness (2024: Expert Reports and Deposition Testimony)

PHILOSOPHY OF TEACHING STATEMENT

My teaching philosophy can be largely attributed to my experiences. I have been very fortunate to have many great teachers in my life. I have found that most who teach are intelligent people well versed in their teaching subject; few, though, are great teachers. Great teachers set themselves apart from their colleagues by truly engaging students in the subject matter and beyond.

I have noticed a few commonalities between great teachers in my life. The most noticeable trait is enthusiasm. Great teachers are enthusiastic about the subject matter they teach and wish to share that enthusiasm with their students. Every teacher expresses their enthusiasm in a different way. I strive to communicate my enthusiasm to my students every time I enter the classroom or laboratory.

Great teachers are also able to connect with students on a personal level. Teachers that took the time to learn who I was, beyond a name on the class roll book, were able to engage me in the subject matter much more easily. I believe that by learning more about students, even outside the classroom setting, a dedicated teacher can begin to adapt their teaching methodology to better address the different learning styles of those students. Additionally, that teacher begins to recognize intellect, aptitude, and other attributes that may not be apparent in the classroom setting. Great teachers use the knowledge obtained from these relationships to tailor classroom curriculum, visual examples and hands-on activities to fully cultivate interest and engage their students in higher order learning. When explaining difficult concepts to students, I work to relate the subject to real world applications from their own backgrounds and experiences.

The American author and humorist, Mark Twain is attributed as once saying, “I have never let my schooling interfere with my education.” I think Mr. Twain was trying to express that sometimes we focus too much on the expectations or requirements of teaching students such as the amount of subject matter that must be presented, the specific topics that must be covered and the assessments that must be developed and completed. These expectations can interfere with the real reason for which we teach: to awaken the student’s desire to ask questions in a lifelong quest for knowledge. I realize that certain expectations are a necessary part of the educational system, but it is our job as teachers to not allow them to hinder a student’s development. When teaching engineering subjects, it is very easy to get caught up relaying the various fundamental theories and their equations to students and forget to portray why they are important and how they can be applied.

Ultimately, my goal as an educator is to show students that learning is a lifelong process that goes beyond the classroom or laboratory. My goal is not for students to be able to remember every single piece of information I have ever taught them, but to instill in them the curiosity to question the unknown and the desire to explore it.