**Curriculum Vita**

Douglas M. Kingman, Ph.D.

**Personal Biography**

Dr. Kingman completed his undergraduate education at Texas A&M University in 1991, where he received a B.S. from the Department of Agricultural Engineering. In 1998, he obtained a M.Ed. from TAMU and later a M.S. from Purdue University in 1999. In 2002, he earned a Ph.D. from the Department of Agricultural and Biological Engineering at Purdue University. Teaching areas include safety, soil and water conservation, irrigation, and energy. He was a faculty member at Illinois State and Sam Houston State Universities and focused his research efforts on bio-diesel fuel and rescue strategies for individuals trapped in grain. His safety work resulted in the development and testing of prototype rescue tube devices and ultimately commercialization. The Liberty Rescue TubeTM is a device that is available for rescue groups that provide technical rescue capability for the extrication of individuals partially engulfed in grain and has been distributed across the globe. Numerous industry groups and Extension agencies provide training on the use of rescue tubes, and the availability of this equipment is considered standard for industrial grain facilities. Besides teaching and researching safety issues, Dr. Kingman has provided expert witness testimony and consultation to attorneys involved with agricultural and industrial safety litigation. Dr. Kingman was promoted to the rank of Instructional Professor in September of 2021.

Education

Ph.D., Agricultural Systems Management, 2002, Purdue University, West Lafayette, Indiana

M.S., Agricultural Systems Management, 1999, Purdue University, West Lafayette, Indiana

M.Ed., Agricultural Education, 1998, Texas A&M University, College Station, Texas

B.S., Agricultural Systems Management, 1991, Texas A&M University, College Station, Texas

Teaching and Professional Experience

Instructional Professor of Agricultural Systems Management, Department of Biological and Agricultural Engineering, Texas A&M University (2021-present)

Independent Agricultural and Industrial Safety Consultant, Expert Witness (1998-present)

Instructional Associate Professor of Agricultural Systems Management, Department of Biological and Agricultural Engineering, Texas A&M University (2015-2021)

Associate Professor, Department of Agricultural and Industrial Sciences, Sam Houston State University (2009-2014)

Assistant Professor, Department of Agricultural and Industrial Sciences, Sam Houston State University (2006-2009)

Assistant Professor, Department of Agriculture, Illinois State University (2001-2005)

Visiting Program Specialist, Texas AgriLife Extension Service, Biological and Agricultural Engineering Department, Texas A&M University (2008-2009)

Assistant Professor, Department of Agriculture, Illinois State University (2001-2005)

Safety Training Instructor, Purdue University, West Lafayette, Indiana (1998-2001)

Research Assistant, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana (1998-2001)

Student Technician, Instructional Materials Service, Department of Agricultural Education, Texas A&M University, College Station, Texas (1997-98)

Engineering Technician, USDA/ARS Aerial Application Research Unit, College Station, Texas (1997-98)

Maintenance Manager, Camp Cooley Ranch, Ltd., Franklin, Texas (1994-97)

Research Technician, USDA/ARS Aerial Application Research Unit, College Station, Texas (1993-94)

Irrigation Equipment Sales, Design, Installation, ATS Irrigation, Inc., Brenham, Texas (1992-93)

**Classes Taught at Texas A&M University**

AGSM 105 The World Has a Drinking Problem: Global Water Scarcity

Lecture and group learning activities result in developing informed opinions and facilitate study of how drinking water maintains and improves human health, availability of fresh water throughout the world; population changes, cultural influences, and political power affect quality, distribution, and cost of water for children, rural communities, and under-represented peoples. Core Curriculum: Science/Cultural Discourse. Credit 3. 3 Lecture hours

AGSM 125 Introduction to Agricultural Systems Management

This introductory class encourages student interaction thru group work and familiarizes the students with AGSM career paths, curriculum, academic expectations, and the advising system. Guest speakers that are typically former students give advice on post-graduate success and preparation for real-world industry challenges. A special emphasis is placed on inclusion and welcoming transfer students into the AGSM major. **Credit 1. 2 Lab Hours.**

AGSM 201 Agricultural Energy and Power Systems

Mechanical theories presented in dynamic lectures are enhanced with in-depth experiential learning in weekly laboratories. Students disassemble/assemble small engines, use hydraulic trainers, and test horsepower output of internal combustion engines utilizing traditional and non-traditional fuel sources. Credits 3. 2 Lecture Hours. 2 Lab Hours.

AGSM 335 Water and Soil Management

The characteristics of soils, management of runoff, and prevention of soil loss are taught in a classroom setting. An in-depth history of cultivation practices and the effects on civilization is contrasted with cutting-edge soil saving techniques used on TAMU farms. Students are challenged during the experiential learning laboratories where they measure land area and conduct differential leveling and land surveys. Favorite laboratories of students include pond measurement, topographic mapping, and distance measurement on rough terrain. Credits 3. 2 Lecture Hours. 3 Lab Hours.

AGSM 435 Irrigation Principles and Management

A flipped classroom setting affords students an opportunity to work independently or with peer interaction to solve complex hydraulic problems related to the design of piping systems, static vs dynamic conditions, changes in elevation, and pumping scenarios. Students acquire hands-on skills in outdoor laboratories that require the measurement of water application, joining of pipe and fittings, installation techniques, and controller programing. On occasion, system installation labs offer heavy equipment operation and experiential learning opportunities in a real-world setting. Credits 3. 2 Lecture Hours. 3 Lab Hours.

AGSM 360 Occupational Safety Management

Based on student requests, this class was re-formatted from a lecture to an online offering. Modeled after OSHA and industry certification processes, students study 37 topics and complete online question sets. Students with a higher passing grade are offered a 30-hour industry certification. Credits 3. 3 Lecture Hours.

**Graduate Research Committee Member**

* Rueda, Jose M. Torres. Static And Rotodynamic Characteristics Of Liquid Annular Seals With A Circumferentially Grooved Stator And Smooth Rotor Using Three Levels Of Circumferential Inlet-Fluid Rotation. Graduated in Fall 2016 . Master’s Thesis. Major: Mechanical Engineering. Chair: Dr. Dara W. Childs, Professor Emeritus. I visited the Turbo Laboratory and examined the experimental apparatus prior to assisting Mr. Rueda with thesis edits and description of his experiments.

**AGSM and BAEN Undergraduate Student Projects**

* AGSM 485. Cost analysis and feasibility study of restoration of TAMU farm tractor. Student: Micah Murphy. Spring 2020. 3 hours. Lead student through process of evaluating equipment and obtaining meaningful pricing for cost analysis.
* AGSM 485. Field testing of quarter scale pulling tractor using weighted sled. Students: Randy Stark and Mathew White. Fall 2018. 1 hour. Taught students how to design effective experiment enabling quality comparison of results.
* AGSM 485. Design and construction of a skid plate for a towable sled. Student: Jordan Groom. Spring 2018. 3 hours. Helped student design and analyze appropriate welds and material joining while considering functionality.
* AGSM 485. Design and construction of a weighted sled winching system. Students: Mathew White and Tanner Lund. Spring 2018. 2 hours. Mentored students to design an effective and ingenious mechanism to move weight table while vehicle was in motion.
* AGSM 485. Quarter scale pulling tractor design and construction. Students: Amanda Zalmanek, John Smith, and Allison Thomason. Spring 2018. 1 hour. Assisted students with safety analysis and material application.
* AGSM 485. Design and construction of a small engine workbench system. Student: Brenner Haby. Spring 2018. 2 hours. Mentored student through a rigorous process of reasoning and decision making for evaluating need and then designing a prototype workbench for possible use in AGSM 201 laboratories.

**Co-Instructor for Laboratory Lectures for BAEN 301: Biological and Agricultural Engineering Fundamentals I**

Devise laboratory lectures and lab activities for topics identified by Dr. Sandun Fernando including shop safety and PPE, engine part identification, engine disassembly and assembly, function and physics of carburetors, ethanol testing, power output measurement from engines using PTO and water brake dynamometers, and exhaust system characteristics.

* Lab Lecture/Activity 1: Carburetors, Chokes, and Ethanol in Fuel. Teach and demonstrate fundamentals, characteristics, design, climatic influences, thermodynamics, and function of carburetors while using fossil fuels and high percentage ethanol fuels. 1 hour lecture 1 hour lab activity.
* Lab Lecture/Activity 2: Dynamometer and Engine Breakdown. Teach function and use of dynamometers in industry and how to disassemble/assemble small internal combustion engines. Students utilize power output measurement results for formal engine dynamometer report. 1 hour lecture 1 hour lab activity.

External Funding

* Peterson, R. (Co-PI), Grenweldge, C. (Co-PI), and Kingman, D. (Co-PI). Texas AgrAbility ACE (Access, Connect, & Assist) Project. AgriLife Extension Service. $720,000 from USDA-National Institute of Food And Agriculture to serve disabled farmers and ranchers (2018 thru 2022).
* Peterson, R. (Co-PI), Grenweldge, C. (Co-PI), and Kingman, D. (Co-PI). Texas AgrAbility Project. AgriLife Extension Service. $680,000 from USDA-National Institute of Food And Agriculture to serve disabled farmers and ranchers (2018 thru 2022).

Awards and Honors

* Biological and Agricultural Engineering Department. Excellence in Teaching. (2018)
* Biological and Agricultural Engineering Department. Excellence in Teaching. (2017)
* Agricultural Systems Management Student Club. Honorary Professor of the Year. (2016)

Service

* TAMU Aggie Honor System Council member (2018-present)
* Advisor: Ag. Systems Management Student Club at Texas A&M University (2015-present)
* Advisor: Aggie Pullers Student Club at Texas A&M University (2015-present)
* Superintendent: State and Area FFA Tractor Technician CDE (2005-2017)
* Superintendent: Houston Livestock Show and Rodeo (2005-2017)
  + Ag Mechanics Project Show
  + Tractor Restoration Show
  + FFA Tractor Technician Contest

Memberships

* American Society of Agricultural and Biological Engineers (1986-present)
  + EOPD-205 Engineering Technology and Management Education Committee. Meet and exchange ideas to improve AGSM curriculum, measuring program success, recruiting females and students from under-represented groups into AGSM major, addressing the changing learning styles of freshman students, identifying industry needs, and sharing techniques to improve online education.
  + E-05/1 K-12 Outreach Committee. Provide leadership, coordination, and technical expertise for the design, implementation, and academic assessment of high school students competing in national and statewide FFA/4H ag mechanization contests. Present middle and high school student recruiting efforts to obtain, recognize, welcome, and appreciate students of diversity into AGSM and BAEN undergraduate programs.
  + Texas Section of American Society of Agricultural and Biological Engineers. Take Aggie Puller and AGSM Student club members to state meetings with BAEN display trailer with competition tractor for student recognition and solicitation of donations.
* National Association of Safety Professionals (2016-present)
* International Society for Agricultural Safety and Health (2005-present)
* Texas A&M Graduate Faculty (2016-present)

Certification

Licensed Safety Professional (LSP), National Association of Safety Professionals (NASP). Since 2015, I have been a member of NASP and I have held a training certification that affords me the opportunity to oversee the offering NASP safety certificates to students enrolled in AGSM 360 Occupational Safety Management who meet or exceed minimum standards. The LSP certification is the highest designation offered by NASP and indicates the highest level of proficiency. The LSP is an indication of a level of proficiency expected of a safety professional who can develop and manage a comprehensive facility-wide or corporate safety program and supervising others to do the same.

**Selected activities prior to joining TAMU in 2015**

**Teaching at Sam Houston State University, Huntsville, Texas**

* ITEC 4372 Industrial Safety, 3 hours
* AGRI 2303 Introduction to Ag Mechanization and Engineering, 3 hours
* AGRI 3310 Teaching Agricultural Technology, 3 hours
* AGRI 3380 Agricultural Machinery, 3 hours
* AGRI 3383 Soil and Water Conservation Engineering, 3 hours
* AGRI 4371 Agricultural Safety and Health, 3 hours
* AGRI 4390 Turf and Cropland Irrigation and Drainage, 3 hours
* AGRI 4392 GPS Applications in Agriculture and Construction, 3 hours
* AGRI 4393 Alternative Energies in Agriculture, 3 hours

Undergraduate Student Research Projects at Sam Houston State University

* Paben, R. 2008. Power output and exhaust temperature of recovered transmission lubricant. Sam Houston State University.
* Martin, J. 2008. Power output and consumption under heavy load for used vegetable oil and choice white grease. Sam Houston State University.
* Jackson, L. 2008. Converting turf grass equipment to biodiesel (Houston Astros MLB Grounds Department). Sam Houston State University
* Kiker, J. 2007. Engulfment awareness on Texas rice farms. Sam Houston State University
* Kiker, J. and C. Brown. 2006. Power output from selected bio-diesel fuels and oils. Sam Houston State University.

**Teaching at Illinois State University, Normal, Illinois**

* AGR 130 Introduction to Ag Engineering Technology, 3 hours
* AGR 231 Agricultural Construction and Maintenance, 3 hours
* AGR 232 Agricultural Power Units and Machinery, 3 hours
* AGR 234 Soil and Water Conservation, 3 hours
* AGR 235 Farm Utilities, 3 hours
* AGR 237 GIS and GPS Applications In Agriculture, 3 hours
* AGR 340 Equipment for Producing and Handling Agricultural Products, 3 hours

Undergraduate Student Research Projects at Illinois State University

* Nelson, K. 2005. Cultivating Youth for Farm Safety. Illinois State University.
* Rader, A. and K. Nelson. 2004. Design, Construction, and Testing of a Heated Fuel Tank for Vegetable Oil. Illinois State University.
* Oest, M., C. Ishmael, and D. Russel. 2003. Power Output Efficiency of Alternative Fuels, Powering a Tractor Engine with Used Vegetable Oil from an ISU Cafeteria. Illinois State University.

**Teaching at Purdue University, West Lafayette, Indiana**

* ASM 350 Agricultural Safety, 3 hours
* ASM 591B Turf Irrigation and Drainage (assistant to Department Head), 3 hours

**Graduate Research Committees**

* Patel, J. 2008. Masters Thesis: Power output and exhaust temperatures of B20 vs. B50 biodiesel from choice white grease. Committee Chair. Sam Houston State University
* Fletcher, K. 2006. Masters Thesis: Customer Opinions of John Deere AutoTrac Systems. Committee Chair. Illinois State University
* Meteer, W. 2006. Masters Thesis: Application and Evaluation of the Farm Grain Hazard Assessment Tool in Illinois. Committee Chair. Illinois State University
* Russel, D. 2004. Masters Thesis: Phytoremediation of Crude Oil Contaminated Soil. Committee Member. Illinois State University
* Langley, Meagan. 2006. Master’s Committee. Member. Sam Houston State University.

Research

*Refereed Publications*

Yildiz, Faruk. D.M. Kingman, and J.M. Muller. 2013. Renewable Energy Workshops to Promote STEM Education in Rural Schools. *Technology Interface International Journal*.

Kingman, D.M., J.E. Muller, and K. Nelson. 2007. Prototype Engulfment Rescue Tube Testing. *Journal of Agricultural Systems, Technology, and Education*. Vol. 22.

Rhykerd, R.L., K.W. Tudor, B.R. Wiegand, D.M. Kingman, and D.G. Morrish. 2006. Enhancing experiential learning through a hands-on crop production and marketing contest. *NACTA Journal* 50(4).

Kingman, D.M. and W.E. Field. 2005. Using fault tree analysis to identify contributing factors to engulfment in flowing grain in on-farm grain bins. *Journal of Agricultural Safety and Health.* American Society of Agricultural Engineers. Vol. 11(4).

Kingman, D.M., A.M. Yoder, N.S. Hodge, R. Ortega, and W.E. Field. 2005. Utilizing expert panels in agricultural safety and health research. *Journal of Agricultural Safety and Health.* American Society of Agricultural Engineers. Vol. 11(1).

Kingman, D.M., A. Spaulding, and W.E. Field. 2004. Predicting the potential of engulfment utilizing an on-farm grain storage hazard assessment tool. *Journal of Agricultural Safety and Health.* American Society of Agricultural Engineers. Vol. 10(4).

Kingman, D.M., G.R. Deboy and W.E. Field. 2003. Contributing factors to engulfments in on-farm grain storage bins: 1980 through 2001. *Journal of Agromedicine.* Vol*.* 9(1).

Kingman, D.M., W.E. Field and D.E. Maier. 2001. Summary of fatal entrapments in on-farm grain storage bins, 1966-1998. *Journal of Agricultural Safety and Health.* American Society of Agricultural Engineers. Vol. 7(3).

*Research Funding*

$720,000 from USDA to Texas AgriLife Extension Service for Texas AgrAbility Project, Sam Houston State University subcontract award receives $168,000 to serve disabled farmers and ranchers (2009 thru 2013).

$7,500 from the Parten Foundation for bio-diesel fuel research and assessment of power output from vegetable oils (2007, 2010).

$15,000 from Entergy, Inc. for H.S. science teacher workshops. Kingman, D. and Yildiz, F.

$68,000 from Hewlett Packard to establish the HP Agriculture Technology Learning Laboratory that consists of 25 laptops and ancillary equipment (2007).

$5,000 in-kind contribution (JD 4520 tractor) from Paben Farms, Inc. for support of the SHSU bio-diesel research initiative: Output of selected alternative bio-diesel fuels (2006).

$1,000,000 from the U.S. Department of Energy for wind energy research and curriculum development at Illinois State University (2005).

$500,000 from the Illinois Clean Energy Community Foundation for the installation of a Vestas NM82 Wind Turbine Generator at the ISU farm (2004).

$4,638 from John Deere Company, Crop Systems Research for a project to identify the opinions of customers who own and operate John Deere Auto Trac™ Self-Steering Systems on their tractors, combines, or applicators (2004) .

$135,000 from the National Institute for Occupational Safety and Health through the Great Lakes Center for Agricultural Safety and Health over two years to field test the Farm Grain Hazard Assessment Tool (FGHAT) with 100 Illinois farmers and 25 commercial facility operators. In addition, a web based version of the FGHAT will be developed and pilot tested with Illinois farmers (2003).

$40,000 from the Illinois Clean Energy Community Foundation for the installation of a 82m tall meteorological tower at the ISU farm (2003).

$65,000 in-kind contribution from NEG-Micon, an Illinois-based wind turbine manufacturer that served as the contractor in erecting the meteorological tower with a total project cost of about $105,000 (2003).

$13,437 C-FAR/ISU Departmental Competitive Grant to measure and evaluate the wind-regime at the Illinois State University Farm at Lexington, Illinois (2003).

$24,445 C-FAR/ISU Departmental Competitive Grant to design and field-test a containment system (Liberty Tube™, provisional patent pending) to assist rescue workers during the extrication of a victim who is partially engulfed in grain (2002).

$5,000 Illinois State University Research Grant to construct and field-test a containment system to assist rescue workers during the extrication of a victim who is partially engulfed in grain (2002).

$25,000 NIOSH grant through the Midwest Center for Agricultural Disease and Injury Research, Education and Prevention to address the problem of flowing grain entrapments in on-farm grain structures by using a systems approach to develop an assessment tool at Purdue University (1999).

Outreach and Impact

Grain Entrapment Rescue

Entrapment of workers and others in grain is a major safety issue in agriculture with approximately 30 entrapments occurring annually in the US (Purdue, 2018). Rescue and recovery of trapped individuals requires quick action that protects both the victim and rescuers. Beginning with dissertation research at Purdue and continuing at Illinois State university with a $135,000 NIOSH grant, this work resulted in the development and testing of prototype rescue tube devices and ultimately commercialization. The Liberty Rescue TubeTM is a device that is available for rescue groups that provide technical rescue capability for the extrication of individuals partially engulfed in grain and has been distributed across the globe. As a result of the success and impact of the Liberty Rescue TubeTM, there are seven companies selling similar tubes, and the Nationwide insurance company annually provides grants to emergency responder organizations to obtain these rescue tube systems. Numerous industry groups and Extension agencies provide training on the use of rescue tubes, and the availability of this equipment is considered standard equipment for industrial grain facilities.

*Selected Papers, Articles, and Posters*

Kingman, D.M. and M.J. Fleming. 2004. Poster: Improvements to a Prototype Plastic Grain Rescue Tube. National Institute of Farm Safety, Keystone, Colorado.

Kingman, D.M. 2004. Paper/Article: Liberty TubeTM Prototype Plastic Grain Rescue Tube. *Resource Magazine,* September 2004 Vol. 11(7). Published by ASAE, St. Joseph,

Kingman, D.M. and M.J. Fleming. 2004. Poster: Prototype Plastic Grain Rescue Tube. Improving Agricultural Health and Safety Programs Through Evaluation Conference, The Ohio State University. March 2004, Columbus, Ohio.

Kingman, D.M. and W.E. Field. 2001. Paper/Article: Buried Alive. *Resource Magazine,* January 2001 Vol.8(1). Published by ASAE, St. Joseph, Michigan (cover article).

Kingman, D.M., D.E. Maier and W.E. Field. 2000. Poster: Summary of Fatal Entrapments In On-Farm Bins and Recommended Intervention Strategies. AETC Poster No. 00AETC-109. Kansas City, Missouri.

Educational Award

American Society of Agricultural and Biological Engineers. ASABE Blue Ribbon Award. Educational Aids Competition. RainWater Harvesting: System Planning. (2011)