

Shafiqur Rahman, PhD

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Email: shafiqur68@gmail.comOther links: [ResearchGate](#); [Google Scholar](#); [LinkedIn](#)**EDUCATION AND EMPLOYMENT****Education**

2004	Ph. D. in Biosystems Engineering, University of Manitoba, MB, Canada
2000	M. Sc. in Biosystems Engineering, University of Manitoba, MB, Canada
1997	M. Eng. in Agricultural Engineering, Asian Institute of Technology, Bangkok, Thailand
1992	B. Sc. in Agricultural Engineering, Bangladesh Agricultural University, Bangladesh

Employment History

July 2022 – current	Visiting Professor, Cornell Waste Management Institute, Cornell University
July 2021 – May 2022	Director, Division of Agricultural Systems Division, USDA-NIFA
July 2020 – July 2021	Professor (80% research, 20% teaching), Agricultural and Biosystems Engineering, North Dakota State University, Fargo, ND, USA
July 2014 – June 2020	Associate Professor (80% research, 20% teaching), Agricultural and Biosystems Engineering, North Dakota State University, Fargo, ND, USA
Jan 2017 – March 2017	Visiting Professor, River Basin Research Center, Gifu University, Japan
May 2008 – June 2014	Assistant Professor (80% research, 20% Extension), Agricultural and Biosystems Engineering, North Dakota State University, Fargo, ND, USA
Jan 2007 – April 2008	Post-Doctoral Research Associate, Biological and Agricultural Engineering, Texas A&M University, TX, USA
March – Dec 2006	Post-Doctoral Research Associate, National Swine Research and Information Center (NSRIC), Iowa State University, Iowa, USA
Dec 2004 – Feb 2006	NSERC Visiting Fellow, Agriculture & Agri-Food Canada, Ottawa, Canada
July 2004 – Dec 2004	Research Associate, Dept. of Biosystems Engineering, University of Manitoba, Canada
Sept 1998 – July 2004	Research Assistant, Dept. of Biosystems Engineering, University of Manitoba, Canada
Jan 2002 - Apr 2000 & 2002	Teaching Assistant–Manure Management Dept. Biosystems Engineering, University of Manitoba, Canada
May 1994 – July 1998	Assistant Engineer, BMDA, Ministry of Agriculture, Bangladesh

Leadership Training

- **LEAD 21 Leadership Program**, Class 16
- **Leadership Development Program**, NDSU, February- May 2020
- **FastTrack Leadership Intensive training**, Chapel Hill, NC, 11/16/2019 – 11/18/2019
- **NCR Administrative Management Boot Camp**, Kansas City, Missouri, 06/25/2019 – 06/27/2019
- **Avoiding Burnout: Tips for Thriving (not just surviving)**, Jill Nelson, Associate Dean and Associate Professor, Education, 03/28/2019
- **Academic Leaders' Role in Fundraising**, Monique Anderson, Development, Foundation and Alumni Association, NDSU, 12/10/2018
- **Communication and Civility**, Office of the Ombud, NDSU, 11/15/2018
- **Crucial Conversations** facilitated by Catherine Kingsley Westerman, Associate Professor, Communication, NDSU, 10/15/2018
- **Academic Leader Series - Civility and Departmental Climate**, NDSU, 09/26/2018
- **Search Committee training**, NDSU, 08/20/2018
- **Bystander Intervention in Academic Settings**, NDSU, 03/22/2018

Leadership Highlights

International

- **Editor**, Plant, Animal, & Facility Systems Community of the American Society of Agricultural and Biological Engineers (ASABE) Journals, 2022 - present
- **Editorial Board Member**, *Agriculture*, MDPI, 2018 - present
- **Manuscript Editor and Editorial Advisory Board**, *Journal of Animal Science and Technology (JAST)*, 2015 - present
- **Associate Editor**, Plant, Animal, & Facility Systems (Previously Structures and Environment Division), of the American Society of Agricultural and Biological Engineers (ASABE) Journals, 2010 – present
- **Technical Program Chair**, Plant, Animal, & Facility Systems (PAFS), ASABE, 2020 - 2022
- **Chair**, PAFS-50 Committee, ASABE, 2020 – 2022
- **Panel Manager**, USDA-NIFA-Engineering for Agricultural Production Systems (A1521) Program, FY 2020
- **Secretary**, Multistate Hatch Project “S-1074: Future Challenges in Animal Production Systems: Seeking Solutions through Focused Facilitation”, 2020 - 2021
- **District 5 Representative**, Membership Development Council (MDC), ASABE, 2018 – 2020
- **Vice-Chair**, PAFS-50 Committee, ASABE, 2018 - 2020
- **Secretary**, PAFS-50 Committee, ASABE, 2016 – 2018
- **Session Chair**, ASABE Annual International Meeting, several times.
- **Chair**, ASABE SE-412 “Agricultural Waste Management Committee, 2012-2013.
- **Vice Chair**, ASABE SE-412 “Agricultural Waste Management Committee, 2011-2012.
- **Secretary**, ASABE SE-412 “Agricultural Waste Management Committee, 2010-2011.

University

- **Chair, Faculty Affairs Committee**, NDSU, 2019 – 2021

Department

- **Chair**, PT&E Committee, 2020 - 2021
- **Graduate Coordinator**, 2014 - 2021
- **Led**, Precision Agriculture (PAG) Academic Advisory Committee, 2019
- **Chair**, Research Assistant Professors Search Committee, 2018
- **Chair**, Precision Ag Curriculum Committee, 2018 - 2020
- **Chair**, ASM Curriculum Committee, 2015 - 2018
- **Chair**, Seminar Committee, 2013 - 2015
- **Chair**, Research specialist search committee, 2011

SCHOLARLY ACHIEVEMENTS

Grant Funding Summary: 34 funded grants, \$1.38 Million in total funding. Primary sources of grant funds include industry, commodity groups, and federal agencies (USDA-NIFA, EPA). Available upon request.

Scholarly Summary: Book Chapters 3; Refereed Journal Articles Published 67; Research Presentation 50; Invited presentation 10; Extension Bulletins 12; Extension Presentation 21

Researcher and Scholar Supervised**Visiting Scientist**

- Visiting Scientists supervised 14 (4-Bangladesh, 2-China, 1-Japan, 4-Kazakstan, 1-S. Korea, 2-Turkey)

Graduate Students

- Major Professor 11 students (7 PhD, 4 MS; current: 1 PhD)
- As examining committee member 15 students (6 PhD, 9 MS)
- Visiting Scientists supervised 14 (4-Bangladesh, 2-China, 1-Japan, 4-Kazakstan, 1-S. Korea, 2-Turkey)

Undergraduate Students

- Academic advising 13-14 students/semester
- Advisor/co-advisor, senior design project team 10 students
- Student internship advisor (International) 4 students

Publications: Peer Reviewed (* Graduate students/ Visiting scholars/** Research specialists directly supervised):**

1. Ajayi-Banji*, A. A., L. Cihacek, **S. Rahman**, S. Sunoj, C. Igathinathane. 2022. Alkaline pretreatment and Fe₃O₄ nanoparticles effect on N mineralization kinetics of digestate biofertilizers. *Journal of Environmental Quality*, accepted
2. Ajayi-Banji*, A. A., and **S. Rahman**. 2022. A review of process parameters influence in solid-state anaerobic digestion: Focus on performance stability thresholds, *Renewable and Sustainable Energy Reviews*, 167, October 2022, 112756

3. Alghamdi, R. S., L. Cihacek, A. L. M. Daigh, and S. **Rahman**. 2022. Post-harvest crop residue contribution to soil N availability or unavailability in North Dakota. *Agrosystem, Geosciences and Environment*, 2022;5:e20233. <https://doi.org/10.1002/agg2.20233>
4. Rotz, A. C., S. Asem-Hiablie, E. L. Cortus, M. J. Spiehs, **S. Rahman**, A. M. K. Stoner. 2021. An environmental assessment of cattle manure systems in the northern great plains. *Transactions of the ASABE*. 64(4): 1185-1196
5. Ajayi-Banji*, A. A., and **S. Rahman**. 2021. Efficacy of magnetite (Fe₃O₄) nanoparticles for enhancing solid-state anaerobic co-digestion: Focus on reactor performance and retention time. *Bioresource Technology*, 324, 124670, <https://doi.org/10.1016/j.biortech.2021.124670>
6. Ajayi-Banji*, A. A., S. Sunoj, C. Igathinathane, and **S. Rahman**. 2021. Kinetic studies of alkaline-pretreated corn stover co-digested with upset dairy manure under solid-state. *Renewable Energy*, 163: 2198-2207
7. Ajayi-Banji*, A. A., **S. Rahman**, L. Cihacek, and N. Nahar. 2020. Comparison of the reactor performance of alkaline-pretreated corn stover co-digested with dairy manure under solid-state. *Waste and Biomass Valorization*, 11:5211–5222
8. Ajayi-Banji*, A. A., **S. Rahman**, S. Sunoj, and C. Igathinathane. 2020. Impact of corn stover particle size and C/N ratio on reactor performance in solid-state anaerobic co-digestion with dairy manure. *Journal of the Air and Waste Management Association*, 70(4): 436-454
9. Miller, E., M. Spiehs, T. M. Arthur, B. Woodbury, E. Cortus, A. Chatterjee, **S. Rahman**, and J. W. Schmidt. 2019. Cropland amendment with beef cattle manure minimally impacts antimicrobial resistance. *Journal of Environmental Quality*, 48:1683-1693
10. Mehata, M., E. Cortus, S. Niraula, M. J. Spiehs, J. Darrington, A. Chatterjee, **S. Rahman**, and D. B. Parker. 2019. Aerial nitrogen losses and soil nitrate balances in response to fall-applied manure and fertilizer applications in eastern South Dakota. *International Journal of Agronomy*, Volume 2019, Article ID 8572985, 15 pp, <https://doi.org/10.1155/2019/8572985>
11. Datta*, S., **S. Rahman**, M. S. Borhan***, B. Saini-Eidukat, L. Cihacek, and K. Ringwall. 2019. Quantification and characterization of particulate matter generated from unpaved roads in the oil development area of western North Dakota, USA. *Transactions of the ASABE*, 62(3): 615-625.
12. Sarker*, N. C., Md. Borhan***, A. Fortuna, and **S. Rahman**. 2019. Understanding gaseous reduction mechanisms in swine manure resulting from nanoparticle treatments under anaerobic storage conditions, *Journal of Environmental Sciences*. 82: 179-191
13. Niraula*, S., **S. Rahman**, A. Chatterjee, E.L. Cortus, M. Mehata, and M. J. Spiehs. 2019. Beef manure and urea applied to corn show variable effects on nitrous oxide, methane, carbon dioxide, and ammonia. *Agronomy Journal*. 111(3): 1448-1467
14. Sarker*, N. C., **S. Rahman**, Md. Borhan***, P. Rajasekaran, S. Santra, and A.Ozcan. 2019. Nanoparticles in mitigating gaseous emissions from liquid dairy manure stored under anaerobic condition, *Journal of Environmental Sciences*, 76: 26-36. <https://doi.org/10.1016/j.jes.2018.03.014>
15. Niraula*, S., **S. Rahman**, and A. Chatterjee. 2018. Release of ammonia and greenhouse gases along moisture gradient from manure and urea applied Fargo silty clay soil. *Applied Engineering in Agriculture*, 34(6): 939-952

16. Sarker*, N. C., F. Keomanivong, Md. Borhan***, **S. Rahman**, and K. Swanson. 2018. In vitro evaluation of alfalfa and maize silage with nano zinc oxide (nZnO) in mitigating enteric gaseous emissions, *Journal of Animal Science and Technology*, 60:27.
<https://doi.org/10.1186/s40781-018-0185-5>
17. Keomanivong, F.E., M. C. Ruch, M. A. Rodenhuis, M. S. Crouse, J. D. Kirsch, M. L. Bauer, Md S. Borhan, **S. Rahman**, and K. C. Swanson. 2018. Influence of grain type and oil concentration of dried corn distillers grain with solubles on ruminal fermentation and in vitro gas production in cattle fed high-concentrate diets, *Canadian Journal of Animal Science (accepted)* <https://doi.org/10.1139/CJAS-2018-0036>
18. Borhan***, M.S., **S. Rahman**, and N. Sarker*. 2018. Characterizing corn and cattle manure derived biochars relevant to their use as soil additive. *Transactions of the ASABE*, 61(4): 1335-1349
19. Niraula*, S., **S. Rahman**, and A. Chatterjee. 2018. Temperature response on ammonia and greenhouse gas emission from manure amended silty clay soil. *Acta Agriculturae Scandinavica, Section B - Plant Soil Science*, 68(8): 663-677.
<https://doi.org/10.1080/09064710.2018.1459822>
20. Kim, E., S. Lee, H. Jo, J. Jeong, W. Mulbry, **S. Rahman**, and H. Ahn. 2018. Solid-state anaerobic digestion of dairy manure from a sawdust-bedded pack barn: moisture responses. *Energies*. 11(3), 484
21. Rahman*, A., M. S. Borhan***, and **S. Rahman**. 2018. Evaluation of microbial fuel cell (MFC) for bioelectricity generation and pollutants removal from sugar beet sugar processing wastewater (SBPW). *Water Science and Technology*, 77(2): 387-397
22. Keomanivong, F., M. Ruch, J. Liu, J. Kirsch, M. Bauer, C. Dahlen, M. Kapphahn, M. S. Borhan, **S. Rahman**, and K. C. Swanson. 2017. Influence of dry-rolled corn processing and distiller's grain inclusion rate on ruminal pH, ammonia and volatile fatty acid concentration, in vitro methane production and enzyme activity. *Animal Feed Science and Technology*, 228: 132-139
23. Borhan***, M.S., **S. Rahman**, and N. Sarker*. 2017. Dry scrubbing of hydrogen sulfide gas using nano zinc oxide coated glass beads. *Applied Engineering in Agriculture*, 33(3): 407-418.
24. Wang**, D., Q. Duan, Y. Li, X. Tian, and **S. Rahman**. 2017. Investigation of a solar-biogas hybrid energy system for heating, fuel supply and power generation. *International Journal of Energy Research*, 41(13): 1914-1931
<http://onlinelibrary.wiley.com/doi/10.1002/er.3754/pdf>
25. Bhowmik, A., A. Fortuna, L. Cihacek, **S. Rahman**, and M.S. Borhan. 2017. Use of laboratory incubation techniques to estimate greenhouse gas footprints from conventional and no-tillage organic agroecosystems. *Soil Biology and Biochemistry*, 112: 204-215
26. Gautam*, D. P., **S. Rahman**, A. Fortuna, M. S. Borhan***, B. Saini-Eidukat, and A. N. Bezbaruah. 2017. Characterization of zinc oxide nanoparticles (nZnO) alginate beads in reducing gaseous emission from swine manure. *Environmental Technology*, 38(9): 1061-1074. <http://dx.doi.org/10.1080/09593330.2016.1217056>
27. Gautam*, D. P., **S. Rahman**, M. S. Borhan***, and C. Engel. 2016. The effect of feeding a high fat diet on manure composition and gaseous emission from the manure of beef cattle

- feedlot. *Journal of Animal Science and Technology*, 58:22; DOI: 10.1186/s40781-016-0104-6
28. Thapa*, A., **S. Rahman**, and C. W. Lee. 2016. Remediation of feedlot nutrients runoff by hydroponic treatment. *Agric Eng Int: CIGR Journal*, 18 (1):1-18
 29. Gautam*, D. P., **S. Rahman**, A. N. Bezbaruah, and M. S. Borhan***. 2016. Evaluation of calcium alginate entrapped nano zinc oxide to reduce gaseous emissions from liquid dairy manure. *Applied Engineering in Agriculture*, 32(1): 89-102
 30. Tabe*, N., **S. Rahman**, E. Tabe, D. Doetkott, A. B. Ekiri, and M. L. Khaita. 2016. Prevalence of *Escherichia coli* and *Salmonella* in runoff of two cattle feedlots in North Dakota. *Food Protection Trends*, 36(1): 33-42.
 31. Balangoda*, A., **S. Rahman.**, and G. Padmanabhan. 2015. Effects of intermittent artificial circulation in summer months on chlorophyll *a* concentration in a small eutrophic impoundment. *American Journal of Environmental Sciences*, 11(5): 380-391
 32. Thapa*, A., **S. Rahman**, and M. S. Borhan***. 2015. Remediation of feedlot nutrients runoff by electrocoagulation process. *American Journal of Environmental Sciences*, 11(5): 366-379
 33. Kim, S., M. Lee**, H. Kim, I. Hong, H. Ahn, **S. Rahman**, K. Jeong, and J. Lee. 2015. Inactivation effect according to the Thermophilic Aerobic Oxidation process of *Encephalomyocarditis* virus in swine manure. *Journal of the Faculty of Agriculture, Kyushu University*, 60(2): 485-492
 34. Kizil**, Ü, L. Genç, **S. Rahman**, M.L. Khaita, and T.T. Genç. 2015. Design and test of a low-cost electronic nose system in the identification of *salmonella enterica* in poultry manure. *Transactions of the ASABE*, 58(3): 819-826
 35. Kizil**, U., L. Genç, T. T. Genç, **S. Rahman**, and M. Khaita. 2015. E-nose identification of salmonella enterica in poultry manure. *British Poultry Science*, 56(2): 149-156
 36. Simsek, H., B. Cemek**, M. S. Odabas, and **S. Rahman**. 2015. Estimation of nutrient concentrations in runoff from beef cattle feedlot using adaptive neuro-fuzzy inference system. *Neural Network World*, 5(15): 501-518
 37. **Rahman, S.**, and M.S. Borhan***. 2014. Electrolysis of swine manure effluents using three different electrodes Fe-Fe, Al-Al and Fe-Al. *American Journal of Agricultural and Biological Sciences*, 9(4): 490-502.
 38. Adham, M. I., S. M. Shirazi, F. Othman, **S. Rahman**, Z. Yusop, and Z. Ismail. 2014. Runoff potentiality of a watershed through SCS and functional data analysis technique. *The Scientific World Journal*, vol. 2014, Article ID 379763, 15 pages, 2014. doi:10.1155/2014/379763
 39. Borhan***, M. S., **S. Rahman**, and C. Hammer. 2014. Water absorption capacity of flax and pine horse bedding and gaseous concentrations in bedded stalls. *Journal of Equine Veterinary Science*, 34: 611-618
 40. Rahman*, A., **S. Rahman**, and L. Cihacek. 2014. Influence of soil pH in vegetative filter strips to reduce soluble nutrients transport. *Environmental Technology*, 35(14):1744-1752
 41. DeSutter, T., L. Cihacek, and **S. Rahman**. 2014. Application of flue gas desulfurization gypsum (FGDG) to soil and its impact on wheat (*Triticum aestivum* L.) yields, and grain and soil chemistry. *Journal of Environmental Quality*, 34(1):303-311
 42. Cemek**, B., **S. Rahman**, and A. Rahman*. 2013. Artificial neural network for predicting nutrients concentration in runoff from beef cattle feedlot. *Environmental Engineering and*

- Management Journal*, 12(12): 2385-2396.
43. Borhan^{***}, M. S., D. Gautam^{*}, C. Engel, V. L. Anderson, and **S. Rahman**. 2013. Effects of pen bedding and feeding high crude protein diets on manure composition and greenhouse gas emissions from a feedlot pen surface. *Journal of the Air & Waste Management Association*, 63(12): 1457-1468
 44. Rahman^{*}, A., **S. Rahman**, and M.S. Borhan^{***}. 2013. Performance evaluation of three vegetative filter strip designs for controlling feedlot runoff pollution. *Journal of Civil and Environmental Engineering*, 3(1): 124.
 45. **Rahman, S.**, M.S. Borhan^{***}, and K. Swanson. 2013. Greenhouse gas emissions from beef cattle pen surfaces in North Dakota. *Environmental Technology*, 34(10): 1239-1246
 46. Borhan^{***}, M.S., **S. Rahman**, and H. Ahn. 2012. Dry anaerobic digestion of fresh feedyard manure: A case study in a laboratory setting. *International Journal of Emerging Sciences*, 2(4), 509-525
 47. **Rahman, S.** 2012. Suitability of sunflower-hulls-based turkey litter for on-farm turkey carcass composting, *Canadian Biosystems Engineering*, 54: 6.1-6.8.
 48. Rahman^{*}, A., **S. Rahman**, and L. Cihacek. 2012. Efficacy of vegetative filter strip to minimize solids and nutrients from feedlot runoff. *Agric Eng Int: CIGR Journal*, 14(4): 9-21.
 49. Atandi^{*}, E., and **S. Rahman**. 2012. Organic loading and canola meal oil content impacts in dairy manure co-digestion. *American Journal of Biomass and Bioenergy*, 1:1-19 (doi:10.7726/ajbb.2012.1001).
 50. **Rahman, S.**, and M.S. Borhan^{***}. 2012. Typical odor mitigation technologies for swine production facilities - a review. *Journal of Civil and Environmental Engineering*, 2:117 (doi:10.4172/2165-784X.1000117).
 51. Atandi^{*}, E., and **S. Rahman**. 2012. Suitability of canola meal for anaerobic co-digestion of dairy manure. *Biological Engineering Transactions*, 5(2): 71-86.
 52. Atandi^{*}, E., and **S. Rahman**. 2012. Prospect of anaerobic co-digestion of dairy manure-A review. *Environmental Technology Reviews*, 1(1): 127-135
 53. **Rahman, S.**, D. Lin^{***}, and J. Zhu. 2012. Greenhouse gas (GHG) emissions from mechanically ventilated deep pit swine gestation operation. *Journal of Civil and Environmental Engineering*, 2:104.
 54. **Rahman, S.**, H. Xin, S.A. Roberts, J.A. Arthur, R.T. Burns, H. Li, Z. Zhu, L.B. Moody, and K. Bregendahl. 2012. Effects of laying-hen variety on manure properties and ammonia emission. *Transactions of the ASABE*, 55(3): 1059-1065.
 55. **Rahman, S.**, and D. Newman. 2012. Odor, ammonia, and hydrogen sulfide concentration and emissions from two farrowing-gestation swine operations in North Dakota, *Applied Engineering in Agriculture*, 28(1): 107-115.
 56. Chen, Y., A. Kumar, M. A. Sadek, and **S. Rahman**. 2012. Soil cone index in relation to soil texture, moisture content, and bulk density for no-tillage and conventional tillage. *CIGR Journal*, 14(1): 26-37.
 57. **Rahman, S.**, T. DeSutter, and Q. Zhang. 2011. Efficacy of a microbial additive in reducing odor, ammonia, and hydrogen sulfide emissions from farrowing-gestation swine operation. *CIGR Journal*, 13(3): Manuscript #1940.
 58. Mukhtar, S., M. S. Borhan, **S. Rahman**, and J. Zhu. 2010. Evaluation of a field-scale surface aeration system in an anaerobic poultry lagoon. *Applied Engineering in Agriculture*, 26(2):

307-318.

59. Wang, Y., Y. Chen, **S. Rahman**, and J. Froese. 2009. Tillage effects on soil penetration resistance and early crop growth for Red River clay. *Canadian Biosystems Engineering*, 51: 2.1-2.11.
60. **Rahman, S.**, and S. Mukhtar. 2008. Efficacy of a microbial treatment to reduce phosphorus and other substances from dairy lagoon effluent. *Applied Engineering in Agriculture*, 24(6): 809-819.
61. **Rahman, S.**, Y. Chen, J. Paliwal, and B. Assefa. 2008. Models for manure distribution in soil following liquid manure injection. *Transactions of the ASABE*, 51(3): 873-879.
62. Lapen, D. R., E. Topp, M. Edwards, L. Sabourin, W. Curnoe, N. Gottschall, P. Bolton, **S. Rahman**, B. Ball-Coelho, M. Payne, S. Kleywegt, and N. McLaughlin. 2008. Effect of liquid municipal biosolid application method on tile and ground water quality. *Journal of Environmental Quality*, 37(3): 925-936.
63. Mukhtar, S., S. Sadaka, A. L. Kenimer, **S. Rahman**, and J. G. Mathis. 2008. Acidic and alkaline bottom ash and composted manure blends as a soil amendment. *Bioresource Technology*, 99(13): 5891- 5900.
64. Mukhtar, S., L. A. Lazenby, and **S. Rahman**. 2007. Evaluation of a synthetic tube dewatering systems for animal waste pollution control. *Applied Engineering in Agriculture*, 23(5): 669-675.
65. **Rahman, S.**, Y. Chen, and D. Lobb. 2005. Soil movement resulting from sweep-type manure injection tools. *Biosystems Engineering*, 91(3): 379-392.
66. **Rahman, S.**, Y. Chen, Q. Zhang, and D. A. Lobb. 2005. Evaluation methods of manure exposure from liquid manure injection tools. *Canadian Biosystems Engineering*, 47: 6.9-6.16.
67. **Rahman, S.**, Y. Chen, K. Buckley, and W. Akinremi. 2004. Slurry distribution in soil as influenced by slurry application micro-rate and injection tool type. *Biosystems Engineering*, 89(4): 495-504.
68. **Rahman, S.**, and Y. Chen. 2001. Laboratory investigation on soil cutting forces and soil disturbances resulting from different manure incorporation tools in a loamy sand soil. *Soil and Tillage Research*, 58 (1): 19-29.
69. **Rahman, S.**, Y. Chen, Q. Zhang, S. Tessier, and S. Baidoo. 2001. Performance of a liquid manure injector in a soil bin and on established forages. *Canadian Biosystems Engineering*, 43(2): 33-40.
70. **Rahman, S.**, V. M. Salokhe, and A. D. Gupta. 1999. Performance evaluation of selected tube wells in Barind Tract of Bangladesh. *Agricultural Mechanization in Asia, Africa, and Latin America* 30(1): 92.

Book Chapter (4)

1. Keomanivong, F., M. Rodenhuis, M. Ruch, M. Crouse, J. Kirsch, M. Bauer, M. S. Borhan, **S. Rahman**, and K. Swanson. 2016. Impact of grain source and distillers fat level on ruminal enzymes, pH and methane production. Wageningen: Energy and protein metabolism and nutrition, pp. 289-290. (*Collaborative work, Contribution: 10%*).
2. Borhan, M. S., S. Mukhtar, S. Capareda, and **S. Rahman**. 2012. Greenhouse gas emissions

from housing and manure management systems at confined livestock operations. *Waste Management- An Integrated Vision* (Luis Fernando Marmolejo Rebellon, ed.), pp. 259-296, InTech Publisher, Rijeka, Croatia.

3. **Rahman, S.**, and T. R. Way. 2012. Manure management - Poultry. In *Encyclopedia of Environmental Management-Volume III*, Sven Erik Jorgensen (Ed.) Taylor & Francis: New York, 2013; Vol. III, 1690-1695.
4. Wiederholt, R. J., **S. Rahman**, and L. A. Ehni. 2011. Calculating energy efficiency of applying fresh and composted manure to soil. In *GIS Applications in Agriculture, Volume 2 - Nutrient Management for Energy Efficiency*, pp. 265-275, CRC Press, New York.

Editor Reviewed Proceedings (3)

1. Gautam*, D. P., **S. Rahman**, M. S. Borhan***, and A. N. Bezbaruah. 2013. Applications of nanoparticles (NPs) in livestock manure and their effects on air emissions. In International Symposium on Animal Environment and Welfare, October 19-22, 2013, Rongchang, Chongqing, China.
2. **S. Rahman**. 2012. Suitability of sunflower-hulls-based turkey litter for seasonal on-farm turkey carcass composting. *Proc. 4th International Animal By-products Symposium*, May 21–24, 2012, Dearborn, MI.
3. Mukhtar, S., A. Mutlu, and **S. Rahman**. 2008. Management of dairy operations to prevent excessive ammonia emissions. *Proc. Mitigating Air Emissions from Animal Feeding Operations Conference*, May 19-21, 2008, Iowa State University Des Moines, IA.

Technical Reports (2)

1. **Rahman, S.** 2012. Composting turkey carcasses in the northern climate. Submitted to North Dakota Turkey Board (Project No. FAR0017081).
2. **Rahman, S.**, and D. Newman. 2010. Odor, ammonia, and hydrogen sulfide emissions from swine facility in North Dakota. Submitted to North Dakota Pork Council Project No. FAR0014808).

Research Presentations (* Graduate students/** Visiting scholars/**** Research specialist directly supervised) (50)

1. Ajayi-Banji*, A., and **S. Rahman**. 2020. Effects of different pretreatment options on corn stovers and impact on biogas yield and process parameters of co-digestion with dairy manure. 2020 ASABE Annual International Meeting, Omaha, NE, July 12-15, 2020.
2. Ajayi-Banji*, A., and **S. Rahman**. 2020. Impact of Fe₃O₄ nanoparticles on Solid-state anaerobic digestion performance in calcium-pretreated corn stover co-digested with dairy manure. 2020 ASABE Annual International Meeting, Omaha, NE, July 12-15, 2020.
3. Khanaum*, M. M., M. S. Borhan***, and **S. Rahman**. 2020. Wastewater treatment and bioelectricity generation using microbial fluid cell. 2020 ASABE Annual International Meeting, Omaha, NE, July 12-15, 2020.
4. Rahman*, S. W., and **S. Rahman**. 2020. Effects of biochar on greenhouse gas and ammonia emission from soil incubation study. 2020 ASABE Annual International Meeting, Omaha, NE,

July 12-15, 2020.

5. Ajayi-Banji*, A., and **S. Rahman**. 2019. Effect of NaOH-pretreated-corn stover and dairy manure on biogas production in solid-state anaerobic co-digestion. 2019 ASABE Annual International Meeting, Boston, MA, July 7-10, 2019.
6. Rahman*, S. W., and **S. Rahman**. 2019. Characterization of biochar from different feedstocks under low and high temperature. 2019 ASABE Annual International Meeting, Boston, MA, July 7-10, 2019.
7. Ajayi-Banji*, A., and **S. Rahman**. 2019. Effect of pretreatment and agitation frequency on methane yield in solid-state anaerobic co-digestion of dairy manure and corn stover. 2019 Waste to Worth Conference, Minneapolis, Minnesota, April 22-26, 2019.
8. Ajayi-Banji*, A., and **S. Rahman**. 2019. Synergetic process parameters interaction in solid-state anaerobic co-digestion. 2019 Waste to Worth Conference, Minneapolis, Minnesota, April 22-26, 2019.
9. Sarkar*, N.C., **S. Rahman**, M. S. Borhan***, and A. Fortuna. 2018. Understanding gaseous reduction mechanisms in swine manure resulting from nanoparticle treatments under anaerobic storage conditions. 2018 ASABE Annual International Meeting, Detroit, MI, July 29- Aug 01, 2018.
10. Sarkar*, N.C., **S. Rahman**, F. Keomanivong, M. S. Borhan***, and K. Swanson. 2018. Efficacy of nano zinc oxide on enteric gaseous emission reduction. 2018 ASABE Annual International Meeting, Detroit, MI, July 29- Aug 01, 2018.
11. Niraula*, S., **S. Rahman**, and A. Chatterjee. 2017. Can manure application reduce nitrous oxide emission and ammonia volatilization from silty-clay soils of the Red River Valley?. 2017 ASABE Annual International Meeting, Spokane, Washington, July 16-19, 2017.
12. Niraula*, S., **S. Rahman**, and A. Chatterjee. 2017. Greenhouse gas emissions and nitrogen dynamics of solid beef manure applied in Fargo-clay soil. 2017 Annual International Meeting of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Tampa, Florida, Oct 22-25, 2017.
13. Sarker*, N. C., **S. Rahman**, Md. Borhan***, P. Rajasekaran, S. Santra, and A.Ozcan. 2017. Efficacy of different nanoparticles in mitigating gaseous emissions from liquid dairy manure stored under anaerobic condition. 2017 ASABE Annual International Meeting, Spokane, Washington, July 16-19, 2017.
14. Datta*, S., **S. Rahman**, M.S. Borhan***, B. Saini-Eidukat, and L. Cihacek. 2016. Quantification and characterization of particulate matter generated from unpaved roads in the oil development area of western North Dakota. 2016 ASABE Annual International Meeting, Orlando, Florida, July 17-20, 2016.
15. Gautam*, D., and **S. Rahman**. 2016. Characterization of nanoparticles entrapped alginate beads for controlling gaseous production from swine manure. 2016 ASABE Annual International Meeting, Orlando, Florida, July 17-20, 2016.
16. Gautam*, D., **S. Rahman**, A. N. Bezbaruah, A. Fortuna, and M.S. Borhan***. 2015. A new application method of ZnO nanoparticles in livestock manure to reduce gaseous emissions, 2015 ASABE Annual International Meeting, New Orleans, Louisiana, July 26-29, 2015.
17. **Rahman, S.**, A. Bezbaruah, A. Fortuna, and M.S. Borhan***. 2015. Fate and transport of zinc and silver nanoparticles in livestock manure and their impacts on the environment. Nanoscale Science and Engineering for Agriculture & Food Systems Gordon Research

- Conference, Bentley University, Waltham, MA, June 7-12, 2015
18. Gautam^{*}, D., **S. Rahman**, A.N. Bezbaruah, A. Fortuna, and M.S. Borhan^{***}. 2015. Innovative approach of nanoparticles application in livestock manure and associated mechanism to reduce gaseous emission. 2015 ASABE North Central Intersectional Conference, Fargo, North Dakota, April 10-11, 2015.
 19. Borhan^{***}, M. S., and **S. Rahman**. 2015. Dry scrubbing of H₂S gas using nano zinc oxide coated glass beads. 2015 ASABE North Central Intersectional Conference, Fargo, North Dakota, April 10-11, 2015.
 20. Doscher, F.E., M.C. Ruch, J. D. Kirsch, C.R. Dahlen, **S. Rahman**, M.S. Borhan^{***}, M. L. Bauer, and K.C. Swanson. 2015. Determining the impact grain source and distiller's grain fat level on in vitro enteric carbon dioxide and methane production and ruminal pH in cattle. 2015 ASABE North Central Intersectional Conference, Fargo, North Dakota, April 10-11, 2015.
 21. Doscher, F.E., M. A. Rodenhuis, M.C. Ruch, M. S. Crouse, J. D. Kirsch, M.L. Bauer, M.S. Borhan^{***}, **S. Rahman**, and K.C. Swanson. 2015. Influence of dry-rolled corn processing and distillers grain inclusion rate on rumen pH, VFA and NH₃ concentration and in vitro methane production. 2015 American Society of Animal Science Midwest Meeting in Des Moines, IA, March 16-18, 2015.
 22. Gautam^{*}, D., **S. Rahman**, M.S. Borhan^{***}, and A.N. Bezbaruah. 2013. Application of nanoparticles (NPs) in livestock manure and their effects on air emissions. International Symposium on Animal Environment and Welfare (ISAEW)", Chongqing, China, October 19-22, 2013
 23. Libone^{*}, N., **S. Rahman**, D. Doettkot, S. Olet, and M. L. Khaitsa. 2013. Shigatoxin producing *Escherichia coli* burden in cattle feedlot runoff. 2013 annual Conference of Research Workers in Animal Diseases (CRWAD) Meeting, Chicago, Illinois, December 8-10, 2013.
 24. Borhan^{***}, M.S., D. Gautam^{*}, **S. Rahman**, C. Engel, and V. Anderson. 2013. Effects of bedding and feeding high crude protein on greenhouse gas emissions from feedlot pen surfaces. ASABE Paper No. 131594612. 2013 ASABE Annual International Meeting, Kansas City, Missouri, July 21-24, 2013.
 25. Libone^{*}, N., M. L. Khaitsa, D. Doettkott, and **S. Rahman**. 2012. Occurrence of shiga toxin-producing *escherichia coli* (STEC) and salmonella in feedlot runoff. 2012 annual meeting of North Central Branch of the American Society for Microbiology (NCB-ASM), Oct 12-13, 2012, NDSU, Fargo, ND.
 26. Rahman^{*}, A., and **S. Rahman**. 2012. Effect of pH in vegetative filter strips in reducing manure borne soluble nutrient runoff. 2012 ASABE Annual International Meeting, Dallas, TX, July 29- August 1, 2012.
 27. **Rahman, S.**, M. S. Borhan^{***}, and K. Swanson. 2012. Greenhouse gas (GHG) emissions from beef cattle pen surfaces in North Dakota, 2012 ASABE Annual International Meeting, Dallas, TX, July 29-August 1, 2012.
 28. Borhan^{***}, M. S., **S. Rahman**, and H. Ahn. 2012. Dry anaerobic co-digestion of beef cattle manure and corn stover. 2012 NC-ASABE Annual International Meeting, Fargo, ND, March 30-31, 2012.
 29. Atandi^{*}, E., and **S. Rahman**. 2012. Organic loading and canola meal oil content impacts in dairy manure co-digestion. 2012 NC-ASABE Annual International Meeting, Fargo, ND, March 30-31, 2012.

30. Vargas-Ramirez, J. M., D. Haagensohn, **S. Rahman**, and D. P. Wiesenborn. 2012. Change in fermentable sugars in sugar beets stored anaerobically. 2012 NC-ASABE Annual International Meeting, Fargo, ND, March 30-31, 2012.
31. **Rahman, S.** 2011. Odor, ammonia and hydrogen sulfide concentration and emissions from two gestation-farrowing barns in North Dakota. 2011 ASABE Annual International Meeting, Louisville, KY, August 8-10, 2011.
32. Atandi*, E., and **S. Rahman**. 2011. Suitability of canola meal for anaerobic co-digestion of dairy manure. 2011 ASABE Annual International Meeting, Louisville, KY, August 8-10, 2011.
33. Rahman*, A., and **S. Rahman**. 2011. Efficacy of vegetative filter strip to minimize solids and nutrients from feedlot runoff. 2011 ASABE Annual International Meeting, Louisville, KY, August 8-10, 2011.
34. **Rahman, S.**, and D. Newman. 2010. Efficacy of bacterial treatment to mitigate odor, ammonia and hydrogen sulfide emissions from gestation-farrowing barns in North Dakota. 2010 ASABE Annual International Meeting, Pittsburg, PA, June 20-23, 2010.
35. **Rahman, S.**, and S. Mukhtar. 2010. On-farm turkey carcass composting using sunflower hulls-based turkey litter in North Dakota climatic conditions. 2010 ASABE Annual International Meeting, Pittsburg, PA, June 20-23, 2010.
36. **Rahman, S.**, D. Newman, and Q. Zhang. 2009. Odor, ammonia and hydrogen sulfide emissions from swine facilities in North Dakota. 2009 ASABE Annual International Meeting. Reno, Nevada, June 21- June 24, 2009.
37. Borhan, S., S. Mukhtar, J. Zhu, and **S. Rahman**. 2009. Evaluation of a low-cost surface aeration system in an aerobic poultry lagoon in Texas. 2009 ASABE Annual International Meeting. Reno, Nevada, June 21- June 24, 2009.
38. **Rahman, S.**, S. Mukhtar, and J. Zhu. 2008. Fabrication and performance evaluation of a surface aeration system to control odor from an aerobic poultry lagoon at Texas. 2008 ASABE Annual International Meeting. Rhode Island, June 29- July 2, 2008.
39. **Rahman, S.**, and S. Mukhtar. 2008. Efficacy of a WTS® microbial treatment to reduce phosphorus and other substances from dairy lagoon effluent. 2008 ASABE Annual International Meeting. Rhode Island, June 29- July 2, 2008.
40. Mukhtar, S., A. Mutlu, and **S. Rahman**. 2008. Management of dairy operations to prevent excessive ammonia emissions. Mitigating Air Emissions from Animal Feeding Operation Conference, Des Moines, Iowa, May 19-21, 2008.
41. **Rahman, S.**, and S. Mukhtar. 2007. Efficacy of a microbial treatment to reduce phosphorus and other substances from dairy lagoon effluent. 2007 National Conference on Agriculture and the Environment. Monterey, CA, November 7-9, 2007.
42. Mukhtar, S., and **S. Rahman**. 2007. New technologies (Geotube® and microbial treatment) to reduce phosphorus and other substances from dairy lagoon effluent. 15th National Nonpoint Source Monitoring Workshop. Austin, TX, August 26-30, 2007.
43. Xin, H., **S. Rahman**, J. Arthur, R. Burns, S. Roberts, Z. Zhu, H. Li, L. Moody, and K. Bregendahl. 2007. Effects of laying hen genetics on nitrogen balance and ammonia emissions. 2007 ASABE Annual International Meeting, Minneapolis, Minnesota, June 17-20, 2007.
44. **Rahman, S.**, E. Topp, M. Edwards, and D. Lapen. 2006. *E. coli* persistence of liquid swine manure and liquid municipal biosolids in repacked sand columns with artificial macropores. ASABE Paper No. 062194. 2006 ASABE Annual International Meeting, Portland, Oregon, July

9-12, 2006.

45. Wang; Y., Y. Chen, and **S. Rahman**. 2006. Tillage effects on soil strength and crop growth for Red River clay. CSBE Paper No. 06202. 2006 CSBE Annual Meeting, Edmonton, Alberta, July 16-19, 2006.
46. **Rahman, S.**, Y. Chen, Q. Zhang, and D. A. Lobb. 2004. Sweep injection tool effects on soil surface profile, manure exposure, and odour emissions. ASAE Paper No. 044076. 2004 ASAE/CSAE Annual International Meeting- August 1-4 2004, Ottawa, ON.
47. **Rahman, S.**, Y. Chen, and K. Buckley. 2004. Manure distribution in soil following liquid manure injection. ASAE Paper No. 042207. 2004 ASAE/CSAE Annual International Meeting- August 1-4 2004, Ottawa, ON.
48. **Rahman, S.**, Y. Chen, and D. A. Lobb. 2002. Movement of soil by sweep injection tools. ASAE Paper No. 021141. 2002 ASAE/CSAE Annual International Meeting- July 28-31 2002, Chicago, Illinois.
49. **Rahman, S.**, D. A. Lobb, and Y. Chen. 2002. Size and density of point-tracer for use in soil translocation studies. 45th Annual MSSS Meeting, February 5-6 2002, Winnipeg, MB Canada.
50. **Rahman, S.**, Y. Chen, Q. Zhang, and S. Baidoo. 2000. Evaluation of a liquid manure injector in the soil bin and grassland condition. CSAE/SCGR Paper No. AFL100. CSAE/SCGR Annual International Meeting- July 15–19, 2000 Winnipeg, MB Canada.

Invited Presentations (10)

1. NDSU, ABEN Department, and Manure Management Options. Sangji University, South Korea. 03/17/2017.
2. NDSU, ABEN Department, and Livestock Air Quality Concerns. Chungnam National University (CNU), South Korea. 03/16/2017
3. Options for mitigating nutrients pollution from agriculture. 1st International Symposium of River Basin Studies, River Basin Research Center, Gifu University, 03/07/2017. *Group addressed: Researchers, faculties, and students*
4. Mortality Management and Disposal Options. Second International Conference on Sustainable Agriculture and Environment, Konya, Turkey, 10/01/2015. *Group addressed: Researchers, faculties, and students.*
5. Ongoing research and Extension activities at NDSU. Energy System Engineering Department, Necmettin Erbakan University and Environmental Engineering, Selcuk University, Konya, Turkey 10/01/2013 and 10/02/2015. Group addressed: Researchers, faculties, and students.
6. Ongoing research and Extension activities at NDSU. National Institute of Animal Science (NIAS) and Chungnam National University (CNU), South Korea 10/12/2013 -10/18/2013. *Group addressed: Researchers, faculties, and students.*
7. Manure management and air quality research highlight at NDSU. Çanakkale Onsekiz Mart University, Çanakkale and Namik Kemal University, Tekirdağ, Turkey, 05/31/2013 - 06/09/2013. *Group addressed: Researchers, faculties, and students.*
8. Manure application method and environmental concern. West Central Inc. Spring Agronomy Conference, Holiday Inn, 03/03/2011. *Group addressed: Pesticide dealers, wholesale distributor of crop protection products, stakeholders.*

9. Carcass disposal options. Livestock Marketing Association Annual Meeting, June 11, 2009. *Group addressed – Livestock auction marketing folks.*
10. CNMP Planning in Relation to Water Quality. The Soil and Water Conservation Society & Professional Soil Classifiers Association Annual Meeting, October 09, 2008, Dickinson, ND. *Group addressed – Soil and water conservation group.*

TEACHING

Professional Development

- National Effective Teaching Institute (**NETI-3**) workshop, American Society for Engineering Education (ASEE), June 20, 2020
- Gateways-ND Cohort 5, Fargo, ND.
- Teaching Café, CAFSNR, 2018
- Pedagogical luncheons, NDSU

Courses Taught - Undergraduate

My teaching responsibility started in Fall 2014. Since then I have taught the following courses:

- ABEN 391 Seminar (Career Planning and Job Search)
- ABEN 358 Electrical Energy Applications in Agriculture
- ABEN/ASM 491 Seminar (Career Planning and Job Search)
- ASM 354 Electricity and Electronics in Agriculture
- ASM 323 Postharvest Technology

Courses Taught - Graduate

- ABEN 790 Graduate Seminar

Curriculum Development Activities

ASM 423/623 - Agricultural Waste Management and Utilization: This course is designed to provide the fundamental understanding of livestock waste and other agricultural waste management and the concepts involved in the design of waste management systems that are environmentally sound. This course will address the need for dealing with and utilizing livestock and other agricultural wastes.

EXTENSION

Extension Publications (11)

1. **Rahman, S.**, M. S. Borhan^{***}, C. L. Engel, and V. L. Anderson. 2013. Effect of pen bedding and feeding high-crude protein diets on manure composition and feedlot pen surface temperature. 2013 North Dakota Beef Report, NDSU. pp 23-26
2. **Rahman, S.**, T. Scherer, A. Rahman^{*}, and J. Lang. 2013. Water quality of runoff from beef cattle feedlots. NDSU Extension Publication No. WQ1667
3. **Rahman, S.**, and R. Wiederholt. 2012. Options for land application of solid manure. NDSU Extension Publication No. NM1613.
4. Payne, J., J. Bonhotal, and **S. Rahman**. 2012. Livestock and poultry mortality management.

Learning module, eXtension.

5. **Rahman, S.**, A. Rahman*, and R. Wiederholt. 2011. Vegetative filter strips reduce feedlot runoff pollutants. NDSU Extension Publication No. NM1591.
6. **Rahman, S.**, and K. Rockeman. 2011. Manure spills: What you need to know and environmental consequences. NDSU Extension Publication No. NM1555.
7. **Rahman, S.**, A. Aakre, K. Rockeman, and C. Augustin. 2011. Liquid level marker or depth marker for earthen runoff ponds. NDSU Extension Publication No. NM1514.
8. **Rahman, S.**, and C. Stoltenow. 2010. On-farm turkey mortality composting and management issues under North Dakota climatic conditions. NDSU Extension Publication No. NM1487.
9. Augustin, C., and **S. Rahman**. 2010. Composting animal manures: A guide to the process and management of animal manure, NDSU Extension Publication No. NM1478.
10. **Rahman, S.**, T. Dvorak, C. Stoltenow, and S. Mukhtar. 2009. Animal carcass disposal options, NDSU Extension Publication No. NM1422.
11. **Rahman, S.**, R. Wiederholt, and Y. Chen. 2009. Land application of manure and environmental concerns. NDSU Extension Publication No. NM1407
12. **Rahman, S.**, S. Mukhtar, and R. Wiederholt. 2008. Managing odor nuisance and dust from cattle feedlots. NDSU Extension Publication No. NM1391

Extension Presentations (21)

1. Presented nutrient management and air quality research activities at NDSU Beef cattle complex, Comprehensive Nutrient Management Program (CNMP) group, 11/18/2013, **Presenter**
2. Water absorption capacity of different horse bedding materials and gaseous concentrations in bedded stalls. Big Iron, Fargo, 09/10/2013-09/12/2013, **Presenter**
3. Effects of pen bedding and protein levels on manure composition and greenhouse gas emissions from feedlot pen surfaces, Field Day Carrington REC, 07/16/2013, **Presenter**.
4. Anaerobic co-digestion of livestock manure and corn stover/DDGS to reduce odor and greenhouse gas (GHG) emissions from manure management, North Dakota Corn Council meeting, 01/24/2013, Fargo, ND, **Presenter**.
5. Municipal solid waste management and composting. Waste Management Committee Meeting of RUSTIC, 09/19/2012, Khulna, Bangladesh, Provided technical assistance and hands-on-training for 10 days (Sep 9-20, 2012), **Presenter**.
6. Mortality disposal options and composting, 08/21/2012, Carrington REC, ND, Planner, **Organizer and Presenter**.
7. 4th International animal by-products symposium, Dearborn, MI, **Presenter and Participant**, 05/21/2012–05/24/2012.
8. Odor, ammonia, hydrogen sulfide, and greenhouse gas emissions from swine gestation-farrowing operations in North Dakota, North Dakota Pork Council Board meeting, 05/11/2012, Mandan, **Presenter**
9. Greenhouse gas emissions from livestock production facilities in North Dakota. North Dakota Nutrient Management Advisory Board Meeting, 04/10/2012, Bismarck, ND, **Presenter**.

10. Vegetative Filter Strips to Reduce Feedlot Runoff Pollutants and Pathogen, NDSU 2011 Extension/REC Fall Conference, 11/02/2011, Fargo, ND, **Presenter**.
11. Animal feeding operations and Environmental Concern, NDSU 2011 Extension/REC Spring Conference, 03/31/2011, Fargo, ND, **Presenter and Participant**.
12. Manure spill, emergency action plan and environmental concerns. NDSU Nutrient Management Training, Fargo, 03/24/2011, **Presenter**.
13. Greenhouse gas emissions from livestock facilities. North Dakota Corn Council. Fargo, 01/25/2011, **Presenter**.
14. Demonstrated swine carcass composting process and talked to producer. 12/01/2010.
15. Carcass disposal options, CAFO School, Bismarck, 02/12/2010, **Presenter**.
16. Turkey carcass composting, North Dakota Turkey Federation Board Meeting, Fargo, ND, 12/11/2009, **Presenter**.
17. Carcass disposal options, NDSU Extension Livestock In-service, Washburn, 09/09/2009, **Presenter**.
18. Livestock carcass composting, Carrington REC, 08/19/2009, **Presenter**.
19. Manure application technologies, Manure Applicator and CAFO Operators School, Carrington REC, 03/12/2009, **Presenter**.
20. Overview of manure management, Livestock In-service, Washburn, 09/03/2008, **Presenter**.
21. Manure handling and management, NDSU Fall Conference, 10/30/2008, Fargo, ND, **Presenter and Participant**.

Field Trip/Extension Tour

- Horse mortality demonstration tour, Muskogee, Oklahoma, January 25-27, 2012
- North America Manure Expo, July 20, 2011. Norfolk, Nebraska
- North Dakota Stockmen's Association Feedlot Tour – 2008 (1-day extension tour) Carrington, North Dakota
- Central Texas Nutrient Management Technology Tour - 2007 (1-day extension tour), Dublin, Texas
- Air Quality Solutions for Swine Producers - 2006 (1-day extension workshop), Ames, Iowa, USA

Scholarship/Fellowship/Awards/Honors

- **Outstanding Associate Editor Award**, American Society of Agricultural and Biological Engineers (ASABE) Journals, 2017
- **USDA Agricultural Air Quality Task Force (AAQTF) Member**, 2016-2018
- **Graduate Thesis Award (Ph.D.)**, Canadian Society of Bioengineering (CSBE), 2006
- **Graduate Student Conference Travel Awards**, University of Manitoba, Canada, 2004 & 2002
- **Faculty of Agricultural & Food Sciences Endowment Fund Graduate Studies Bursary**, University of Manitoba, Canada, 2003
- **UMSU Bursary**, University of Manitoba, Canada, 2002 & 2003
- **The Royal Danish Government Scholarship**, Asian Institute of Technology (AIT), Thailand, 1996-97

PROFESSIONAL AND PUBLIC SERVICE

Professional Service

International

Offices Held in Professional Societies

- **Technical Program Chair**, Plant, Animal, & Facility Systems (PAFS), ASABE, 2020 - 2022
- **Chair**, PAFS-50 Committee, ASABE, 2020 - 2022
- **Secretary**, Multistate Hatch Project, S-1074: Future Challenges in Animal Production Systems: Seeking Solutions through Focused Facilitation, 2020 - 2021
- **Vice-Chair**, PAFS-50 Committee, ASABE, 2018 - 2020
- **District 5 Representative**, ASABE, 2018- 2020
- **Secretary**, PAFS-50 Committee, ASABE, 2016 - 2018
- **Member**, American Society of Agricultural and Biological Engineers (ASABE) (1999 – present)
- **Committee Member**, SE-305 Environment Air Quality Committee, ASABE (2006 – present)
- **Chair**, ASABE SE-412 “Agricultural Waste Management Committee, 2012-2013
- **Vice Chair**, ASABE SE-412 “Agricultural Waste Management Committee, 2011-2012
- **Secretary**, ASABE SE-412 “Agricultural Waste Management Committee, 2010-2011

Editorial Service for Journals

- **Editor**, *Plant, Animal, & Facility Systems Community of the American Society of Agricultural and Biological Engineers (ASABE) Journals*, 2022 - present
- **Associate Editor**, *Plant, Animal, & Facility Systems (Previously Structures and Environment Division)*, of the American Society of Agricultural and Biological Engineers (ASABE) Journals, 2010 - 2022
- **Editorial Board Member**, *Agriculture*, MDPI, 2018 - present
- **Manuscript Editor and Editorial Advisory Board**, *Journal of Animal Science and Technology (JAST)*, 2015 - present
- **Editorial Board Member**, *American Journal of Agricultural and Biological Sciences (AJABS)*, 2014 – 2016
- **Guest Editor**, special edition of the Journal of Agriculture titled “Animal Waste Management”, 2015

Other Professional Activities

- **Session Moderator**, ASABE 244 session- Managing Manure and Agricultural Byproducts for Sustainability, 2019 ASABE Annual International Meeting, Boston, Massachusetts, 2019
- **Scientific Committee**, XIX World Congress of the International Commission of Agriculture and Biosystems Engineering (CIGR), 2018
- **Session Moderator**, ASABE 349 session- Manure treatment Systems, 2018 ASABE

Annual International Meeting, Detroit, Michigan, 2018

- **Session Moderator**, ASABE 144 session- PM2.5, VOC, and Other Emission Factors for the Livestock and Poultry Industry, 2017 ASABE Annual International Meeting, Spokane, Washington, 2017
- **Waste to Worth**, Program Planning Committee, 2014-2015, 2016-2017
- ASABE-NC North Central Intersectional Conference, Biltmore on Main Hotel & Suites, Fargo North, ND, April 4-5, 2015, Organized and coordinated the ASABE-NC technical session
- **Session Moderator**, ASABE SE Session 136 “Dr. Ron Sheffield structures and environment division poster session”, 2013 ASABE annual international meeting, Kansas City, MO, 2013
- **Session Moderator**, ASABE SE Session 112 “Air quality as related to agricultural waste management part-1”, 2013 ASABE annual international meeting, Kansas City, MO, 2013.
- **Session Moderator**, ASABE SE-8 & SE-9, “Air quality as related to agricultural waste management part-1&2”, 2012 ASABE annual international meeting, Dallas, TX, 2012.
- **Session Moderator**, NC-ASABE Session-6, “Building environment/manure co-digestion”, NC-ASABE annual international meeting, Fargo, ND, 2012
- **Session Moderator**, ASABE SE-8 & SE-9, “Air quality as related to agricultural waste management part-1&2”, 2011, ASABE annual international meeting, Louisville, Kentucky, 2011
- **Session Moderator**, ASABE SE-8 & SE-9, “Air quality as related to agricultural waste management part-1&2”, 2010, ASABE annual international meeting, Pittsburgh, PA, 2010

Federal Government/University/College/Departmental Service

Federal Government

- Hiring Manager, Biological/Social Science Specialist (National Program Leader), Agricultural Systems Division, NIFA, 2022
- Served on USDA Equity Commission Review Panel, 2021
- Member, Interagency Biogas Working Group, 2021-2022
- Division Director Interview Panel, IFPS and IBCE, USDA-NIFA, 2021

University

- Search Committee member, Interim Dean, Graduate and Interdisciplinary Studies, NDSU, 2020
- Search Committee member, Vice-President for Agricultural Affairs; Dean of the College of Agriculture, Food Systems, and Natural Resources; Director of the North Dakota Agricultural Experiment Station; and Director of NDSU Extension, 2019
- Chair, Faculty Affairs Committee, 2019 - 2021
- Senate Executive Committee, 2019 - 2021
- Steering Committee, ECS program, 2018 - 2021
- Graduate Council, 2018 - 2021

- Faculty Affairs Committee, 2017 - 2019
- University Assessment Committee - CoE, 2015 - 2017
- Graduate Leaders Committee, 2014 – 2021
- Senate Executive Committee, 2013 - 2014
- Faculty Senate, 2012 - 2014

College

- NDSU Agricultural Affairs Diversity, Equity and Inclusion Council, 2020 - 2021
- CAFSNR Curriculum Committee, 2016 - 2021
- Student Progress Committee, CAFSNR, 2016 - 2021
- CoE PT&E Committee, 2015 - 2019
- Ag Nominating Committee, CAFSNR, 2014 - 2019
- NDSU Development Foundation, 2010 - 2016
- CAFSNR 3-Minute Thesis Competition Committee, 2015
- CEA Graduate and Research Committee, 2013 - 2015.
- CAFSNR Dean Evaluation Committee, October 2013 - January 2014
- Swine Faculty Search Committee, Animal Sciences Department, 2009.

Department

Served as Chair of the Committee

- PT&E committee, 2020 - 2021
- Graduate Committee, 2014 - 2021
- Led, Precision Ag Program (PAG) Academic Advisory Committee, 2019
- Two-Research Assistant Professors - Ag Precision Search Committees, 2018-2019
- Precision Ag Program, 2018 - 2020
- ASM Curriculum Committee, 2015 - 2018
- Seminar Committee, 2013 - 2015
- Research specialist search committee, ABEN 2011.

Served as Member of the Committee

- ABEN Recruitment Committee, 2018 - 2021
- ABEN Program Committee, 2018 - 2021
- ABEN PT&E Committee, 2014 - 202
- Scholarship Committee, 2009 - 2021
- ASM Curriculum Committee, 2014 - 2016
- Livestock Environment Management Specialist Search Committee, Carrington REC, 2012.
- Technical Communications Specialist Search Committee, ABEN, 2012.
- Energy Beet Research Associate Search Committee, ABEN, 2012.
- Research Specialist Search Committee, ABEN, 2011.
- Social Activities/gift Committee, 2009 - 2012.

- Extension Committee, 2009 - 2014.
- Space/Infrastructure Committee, 2011 - 2012.
- Personnel Committee, 2011 - 2012.

Service to the Public

Grant Proposal Panel/Reviewer

- **Panel Manager**, Engineering for Agricultural Production Systems (A1521), USDA-NIFA, FY 2020
- USDA-AFRI Foundational and Applied Science Program Proposal Review Panel, 2020
- Ad Hoc reviewer, **USDA NIFA SBIR Phase II panel**, 2018, 2019
- Reviewed **USGS 104g** preproposal, 2018
- Environment and Natural Resources Trust Fund, Legislative-Citizen Commission on Minnesota Resources, 2018
- Served as an Ad Hoc reviewer on the **SBIR-USDA NIFA** grant review panel, 2018
- Served as Judge on the **Clean Tech Competition** (global competition), Center for Science Teaching and Learning (reviewed 8 proposals), 04/20/2018 - 05/07/2018
- Served on the Innovations at the Nexus of Food, Energy and Water Systems (INFEWS) grants review panel, **NSF Track 3-A**, 05/04/2017 – 05/05/2017
- Reviewed grant proposal of Livestock Research Innovation Corporation, **The Agri-Technology Commercialization Centre**, Guelph, Ontario N1G 0B4, Canada, 2016
- Served on the Innovations at the Nexus of Food, Energy and Water Systems (INFEWS) grants review panel, **NSF 3-A**, 05/23/2016 - 05/24/2016
- Served as Judge on the **Clean Tech Competition** (global competition), Center for Science Teaching and Learning (reviewed 6 proposals), 03/22/2016 - 04/08/2016
- Served on the **USEPA Nutrient Recycling Challenge judging panel**, 01/15/2016 - 02/15/2016 (reviewed 5 proposals)
- Served on the **USDA-APHIS Composting Technical Team**, 2015 - present
- Served on the **SBIR-USDA NIFA**, Grant Review Panel, 02/02/2016 - 02/04/2016 (reviewed 11 proposals)
- Served on NIFA- Agricultural Systems and Technology: Engineering Products and Processes Panel Grant Proposal, 10/31/2011 - 11/04/2011.
- Served on NCR-SARE Grant Proposal Review, 01/09/2011.
- Served on the USDA Air Quality Panel, Washington DC, 10/14/2009 - 10/15/2009.
- Grant proposal review for Missouri Life Science Research Board Proposals, Lytmos Group Inc., 10/07/2009.
- Served on the USDA National Integrated Water Quality Program (NIWQP) review panel, Washington DC, 08/25/2009 - 08/27/2009.
- Served on the EPA-SBIR Review Panel (mail-in reviews), 09/04/2008 - 09/05/2008.

Manuscript Reviewer

- Transactions of the ASABE, Applied Engineering in Agriculture, International Commission of Agricultural and Biosystems Engineering (CIGR), Environmental Pollution,

Environmental Technology, Bioresource Technology, KSCE Journal of Civil Engineering, Journal of Environmental Quality (JEQ), American Journal of Agricultural and Biological Sciences, Water Environment Research

Professional Development Activities

- Ally Workshop, NDSU, 04/30/2019
- The Past, Present, and Especially the Future of the American Research University” presented by Dr. Leonard Cassuto, NDSU, 09/24/2018
- Bystander Intervention in Academic Settings, by Dr. Stephanie A. Goodwin, Director for Faculty Development & Leadership at Wright State University, NDSU 03/22/2018.
- NSF Day workshop, North Dakota State University, 2016
- Write Winning NSF Grant Proposals workshop, MU, NDSU, 2016
- The New Investigator/Early Career Programs Proposal writing workshop, TIG Group, QBB, NDSU, 2016
- Promotion, Tenure and Evaluation Training for PTE Committees, Mandan, MU, NDSU, 2016
- Academy’s Performance Task Design Workshop, UND, Grand Forks, 2016
- Promotion, Tenure and Evaluation Training for PTE Committees, Room of Nations, MU, NDSU, 2015
- USDA-NIFA Grant winning proposal workshop, NDSU, 2015
- Waste to Worth: Spreading Science and Solution Conference, Seattle, WA, 03/30/2014 - 04/04/2015.
- Attended Pedagogical Luncheons, 2014, 2015, 2016, 2017
- Waste to Worth Program Planning Committee, 2014 - 2015
- Waste to Worth: Spreading Science and Solution Conference, Denver, CO, 04/01/13 - 04/05/13
- 4th International Symposium on Managing Animal Mortalities. Dearborn, MI, 2012
- American Society of Agricultural and Biological Engineers (ASABE) International Meetings (2000-2011)
- Multi-state Air Quality Group Meeting, Morris, MN, 2009
- Multi-State Carcass Disposal Training, Indianapolis, IA, 2008
- SWAT Beginner Workshop (3-day workshop), Texas A&M University, 2007
- Grant Writing Workshop, (1-day workshop), Texas A&M University, 2007
- LabVIEW Basic II (2 days training), Cedar Rapids, USA, 2006
- Teaching with PowerPoint (4-day workshop), University of Manitoba, Canada, 2004
- Teaching Technique (5-day workshop), University of Manitoba, Canada, 2004
- Course Construction and Organization (5-day workshop), University of Manitoba, Canada, 2004
- Preparing a Teaching Dossier (1-day workshop), University of Manitoba, Canada, 2004

References

References available upon request