Md Elias Uddin, PhD

Assistant Professor

Department of Animal Science, University of Connecticut Email: <u>md_elias.uddin@uconn.edu</u>, Tel: 608-886-3033 Lab Website: <u>https://runlcateam.com/</u>

CURRENT POSITION

Aug. 2023-	Assistant Professor (9-months tenure-track, 60% Research and 40% Teaching)
present	Department of Animal Science, University of Connecticut

PAST APPOINTMENT

Aug. 2021-	Assistant Professor (9-months tenure-track, 70% Research and 30% Teaching)
July 2023	Dairy and Food Science Department, South Dakota State University
Jan. 2020-	Postdoctoral Research Scholar, University of California-Davis
July 2021	Department of Animal Science, Advisor: Prof. Ermias Kebreab
	Project 1 : Evaluating the impact of feed additive supplementation in dairy cows on milk
	carbon footprint in the United States (Funded by Dairy Management Inc.),
	Project 2 : Modeling the growth response of non-ruminants fed methionine in different
	forms (Funded by Adisseo).

EDUCATION

Dec. 2019	PhD in Dairy Nutrition and Systems Modeling
	University of Wisconsin-Madison, Madison, WI, USA
	Dissertation : Evaluation of breed and diet on partial carbon footprint of milk produced in conventional system of Wisconsin
	Dissertation Committee: Prof. Michel Wattiaux (Chair), Prof. Rebecca Larson, Prof.
	Randy Shaver, Prof. Randy Jackson, and Prof. Kent Weigel
Jun. 2016	European Master in Animal Breeding and Genetics (EMABG)
	Wageningen University and Research, the Netherlands and Norwegian University of Life Sciences, Norway
	Grade: Excellent grade in most coursework and thesis
Jun. 2012	MS in Dairy Science (Dairy Cattle Nutrition)
	Bangladesh Agricultural University, Bangladesh
	Merit rank in the class: First (GPA: 3.945/4.0)
Apr. 2010	BS in Animal Husbandry Bangladesh Agricultural University, Bangladesh Merit rank in the class: First (GPA: 3.893/4.0)

RESEARCH EXPERIENCES AS GRADUATE RESEARCH ASSISTANT

2016-2019	Research Assistant, University of Wisconsin-Madison
	Department of Dairy Science, Advisor: Prof. Michel Wattiaux
	My PhD dissertation project (funded by USDA-NIFA) demonstrated that:
	✓ Forage level in lactating dairy cows' diet has greater impact on enteric methane and subsequent manure chain greenhouse gas emissions than forage sources.
	✓ Effects of dietary forage on enteric and manure chain greenhouse gas emissions did not depend on cow breed.
	✓ Enteric emission mitigation strategies need to be evaluated using integrated approach at whole-farm scale than at animal scale evaluations to avoid misleading conclusions.
2015-2016	Research Fellow, Norwegian University of Life Sciences
	Department of Animal & Aquacultural Sciences, Advisor: Prof. Theodorus Meuwissen
	✓ My thesis project demonstrated that dry matter intake data of dairy cows collected from nutritional experiment could be used for genetic evaluations after adjusting for heterogeneity.
2014-2015	Research Fellow, Wageningen University & Research
	Animal Breeding and Genetics chair group, Advisor: Marleen Visker (Researcher)
	 My thesis project demonstrated that FTIR-based sensor installed within automatic milking system could be used as an alternative method of respiration chamber to measure enteric methane.
2012-2014	Lecturer, Department of Dairy Science, Bangladesh Agricultural University
	 ✓ Taught ruminant nutrition, and elementary and applied dairy cattle production courses. ✓ Mentored graduate and undergraduate students.
2011-2012	Research Fellow, Bangladesh Agricultural University
	Department of Dairy Science, Advisor: Prof. M. A. Samad Khan
	✓ My thesis project demonstrated that chopping of fresh-cut long forages and grinding of corn grains could help to improve the digestibility and growth performances of crossbred Holstein heifers.
REFEREED	PUBLICATIONS
1. Uddin M carbon fo life cycle <u>20988</u> .	IE, Tricarico JM, and Kebreab E. 2022. Impact of nitrate and 3-nitrooxypropanolon the ootprint of milk produced in confined feeding systems across regions in the United States: A e analysis. Journal of Dairy Science. 105: 5074-5083. <u>https://doi.org/10.3168/jds.2021-</u>
2. Uddin M 2022. A different	IE , van Lingen HJ, da Silva-Pires PG, Batonon-Alavo D, Friedrich Rouffineau, Kebreab E. meta-analysis using Bayesian approach: Modeling growth responses of non-ruminants fed forms of synthetic methionine precursors. Poultry Science. 2022: 101762.

https://doi.org/10.1016/j.psj.2022.101762.

3. Islam MZ, **Uddin ME**, Rahman MT, Islam MA, and Rashid MH. 2021. Isolation and characterization of dominant lactic acid bacteria from raw goat milk: Assessment of probiotic

potential and starter culture properties. Small Ruminant Research. 205:106532. <u>https://doi.org/10.1016/j.smallrumres.2021.106532</u>.

- Uddin ME, Aguirre-Villegas HA, Larson RA and Wattiaux MA. 2021. Carbon footprint of milk from Holstein and Jersey cows fed low or high forage diet with alfalfa silage or corn silage as the main forage source. Journal of Cleaner Production. 298:126720. <u>https://doi.org/10.1016/j.jclepro.2021.126720</u>.
- 5. Uddin ME, and Wattiaux MA. 2021. Effects of source and level of forage in the diet on *in-vitro* ammonia emission from manure of Holstein and Jersey dairy cows. JDS Communications. 2:16-20. https://doi.org/10.3168/jdsc.2020-0012.
- 6. **Uddin ME**[†], and Kebreab E. 2020. Review: Impact of food and climate change on pastoral industries. Frontiers in Sustainable Food Systems, 4:543403. <u>https://doi.org/10.3389/fsufs.2020.543403</u>.
- 7. Uddin ME, Larson RA and Wattiaux MA. 2020. Effects of dairy cow breed and dietary forage on greenhouse gas emissions from manure during storage and after field application. Journal of Cleaner Production; 270:122461. <u>https://doi.org/10.1016/j.jclepro.2020.122461</u>.
- 8. Uddin ME, Santana OI, Weigel KA and Wattiaux MA. 2020. Enteric methane emissions, production performances, rumen characteristics, nutrient digestibility, nitrogen and energy balance of Holstein and Jersey cows fed dietary forage neutral detergent fiber at 2 levels from 2 sources. Journal of Dairy Science; 103:6087-6099. <u>https://doi.org/10.3168/jds.2019-17599</u>.
- 9. Wattiaux MA, **Uddin ME**, Letelier P, Jackson RD, and Larson RA. 2019. Invited Review: Emission and mitigation of greenhouse gases from dairy farms: The cow, the manure, and the field. Applied Animal Science (formerly known as the Professional Animal Scientist); 35:238-254. https://doi.org/10.15232/aas.2018-01803.
- 10. **Uddin ME,** Meuwissen T, and Veerkamp RF. 2018. Adjusting for heterogeneity of experimental data in genetic evaluation of dry matter intake in dairy cattle. Journal of Animal Breeding and Genetics; 135:28-36. <u>https://doi.org/10.1111/jbg.12300</u>.
- 11. Reyad MA, Sarker MAH, **Uddin ME**, Habib R, and Rashid MH, 2016. Effect of heat stress on milk production and its composition of Holstein-Friesian crossbred dairy cows. Asian Journal of Medical and Biological Research: 2:190-195. <u>https://doi.org/10.3329/ajmbr.v2i2.29060</u>.
- Yesmin S, Uddin ME, Chacrabati R, and Al-Mamun M. 2013. Effect of methionine supplementation on the growth performance of rabbit. Bangladesh Journal of Animal Science; 42: 40-43. <u>https://doi.org/10.3329/bjas.v42i1.15777</u>.
- Islam MA, Uddin ME, Jahan R, Wadud A, and Sarkar MM. 2013. Metabolites in the milk of Buffalo, Holstein cross, Indigenous and Red Chittagong cattle of Bangladesh. Bangladesh Journal of Animal Science; 42:152-157. <u>https://doi.org/10.3329/bjas.v42i2.18504</u>.
- 14. Alam MS, Rashid MH, **Uddin ME** and Asaduzzaman M. 2012. Effect of supplementation of fish meal on growth and reproductive performance of crossbred heifers. Journal of the Bangladesh Agricultural University; 10: 261-266. <u>http://dx.doi.org/10.3329/jbau.v10i2.14917</u>.

MANUSCRIPTS IN-REVIEW/IN-PREPARATION (*Co-First Author; *Corresponding author)

- 15. Santana OI, **Uddin ME**, and Wattiaux MA. Feeding behavior of Holstein and Jersey cows fed diets with varying levels of forages mainly from alfalfa silage or corn silage (**In-preparation**).
- 16. Santana OI, **Uddin ME**^{*}, and Wattiaux MA. Relationship between feeding behavior and enteric emissions and nitrogen excretions in Holstein and Jersey cows fed low or high forage diets based on alfalfa silage or corn silage (**In-preparation**).
- 17. M. Bulnes, J. Bonilla, M. Suazo, G. Begalli, A. F. Souza, J. Lefler, L. Marotz, J. Osorio, **Uddin ME[†]**. Effects of supplementing rumen direct-fed endomicrobials to dairy cows during pre-and postpartum on lactation performances and nutrient utilization efficiency (**In-preparation**).
- 18. M. Bulnes, J. Bonilla, M. Suazo, G. Begalli, A. F. Souza, J. Lefler, L. Marotz, J. Osorio, Uddin ME[†]. Ruminal microbial dynamics of lactating dairy cows supplemented with rumen direct-fed endomicrobials (In-preparation).
- 19. S. Ahmed, M. R. A. Redoy, **Uddin ME[†]**. Enteric emissions and milk fatty acid profile of cows fed diets with varying level of non-forage fiber and supplemented with isoacids (**In-preparation**).

CONFERENCE ABSTRACTS (Selected)

- 1. Redoy MRA, Ahmed S, Bulnes ML, Kleinschmit DH, **Uddin ME**, 2023. Supplementation of isoacids on feeding behaviors and enteric methane emissions of lactating cows fed diets at varying forage fiber level. American Dairy Science Association (ADSA) Meeting-2023 held at Ottawa, Ontario, Canada, 25-28 June, 2023.
- 2. Ahmed S, Redoy MRA, Bulnes ML, Bonilla JB, Kleinschmit DH, **Uddin ME**, 2023. Effects of isoacids supplementation in lactating cows' diet varying in forage fiber level on performances, feed efficiency and milk fatty acids profile. American Dairy Science Association (ADSA) Meeting-2023 held at Ottawa, Ontario, Canada, 25-28 June, 2023.
- 3. Bulnes ML, Lefler J, Marotz C, Halfen J, Fernandes T, Embree M, Osorio J, Uddin ME, 2023. Effects of supplementing native rumen microbes on rumen fermentation and bacterial abundance in transition and mid-lactation Holstein cows. American Dairy Science Association (ADSA) Meeting-2023 held at Ottawa, Ontario, Canada, 25-28 June, 2023.
- 4. Bulnes ML, Lefler J, Marotz C, Trevisi E, Embree M, Osorio J, **Uddin ME**, 2023. Effects of supplementing native rumen microbes on lactation performances and blood biomarkers in transition and mid-lactation Holstein cows. American Dairy Science Association (ADSA) Meeting-2023 held at Ottawa, Ontario, Canada, 25-28 June, 2023.
- 5. Bulnes ML, Bonilla JB, Suazo M, Begalli G, Souza AF, Lefler J, Marotz C, Osorio J, Uddin ME, 2022. Effects of supplementing rumen direct-fed endomicrobials to dairy cows during pre-and postpartum on milk production and composition. American Dairy Science Association (ADSA) Meeting-2022 held at Kansas City, Missouri, 19-22 June, 2022.
- Uddin ME, van Lingen HJ, da Silva-Pires PG, Batonon-Alavo D, Friedrich Rouffineau, Kebreab E. 2022. A meta-analysis using Bayesian approach: Modeling growth responses of non-ruminants fed different forms of synthetic methionine precursors. World Poultry Congress (WPC), Paris, France, 7-11 August 2022.

- 7. Uddin ME, Tricarico JM, Wang Y, and Kebreab E. Impact of feed additives on the farmgate carbon footprint of milk across regions in the United States. Presented at the American Dairy Science Association (ADSA) Annual Meeting 2021.
- 8. Santana OI, **Uddin ME** and Wattiaux MA. Effects of source and level of forage neutral detergent fiber on feeding behavior of Holstein and Jersey cows. Presented at the American Dairy Science Association (ADSA) Annual Meeting 2021.
- 9. Uddin ME, Aguirre-Villegas HA, Laron RA, and Wattiaux MA. 2020. Effects of dietary forage level and source on partial carbon footprint of milk in Holsteins and Jerseys. Proceedings of the American Dairy Science Association (ADSA) Meeting, West Palm Beach, Florida, USA, June 21-24, 2020 (Oral presentation-virtual). <u>https://www.adsa.org/Meetings/2020-Annual-Meeting/Abstracts</u>.
- Uddin ME, Santana OI and Wattiaux MA. 2019. Nitrogen and energy balance of primiparous Holstein and Jersey cows fed 2 levels and 2 sources of forage neutral detergent fiber. Proceedings of the ADSA Meeting, Cincinnati, Ohio, USA, June 24-27, 2019 (Poster). Journal of Dairy Science; 102 (Suppl. 1): 223. <u>https://www.adsa.org/Meetings/Past-Meetings/2019</u>.
- 11. Uddin ME, Santana OI, Wickert T, D'Huvetter D and Wattiaux MA. 2018. Enteric methane emission of lactating Holstein and Jersey cows fed two levels and two sources of forage neutral detergent fiber. Proceedings of the 10th International Symposium on the Nutrition of Herbivores, Clermont-Ferrand, France, September 2-6, 2018 (Oral presentation). Advances in Animal Biosciences; 9(3): 363. <u>https://doi.org/10.1017/S2040470018000146.</u>
- Uddin ME, Santana OI, D'Huvetter D, Wickert T and Wattiaux MA. 2018. Feed, nitrogen and energy conversion efficiencies of lactating Holstein and Jersey cows fed two levels and two sources of forage neutral detergent fiber. Proceedings of the ADSA Meeting, Knoxville, TN, USA, June 24-27, 2018 (Poster). Journal of Dairy Science; 101 (Suppl. 2): 312. <u>https://www.adsa.org/2018/Abstract</u>.
- Santana OI, Uddin ME and Wattiaux MA. 2018. Effects of source and level of forage neutral detergent fiber on feeding behavior of Holstein and Jersey cows. Proceedings of the ADSA Meeting, Knoxville, TN, USA, June 24-27, 2018 (Poster). Journal of Dairy Science; 101 (Suppl. 2): 310. <u>https://www.adsa.org/2018/Abstract</u>.

INVITED TALKS (Selected)

- 1. Uddin ME (Invited Speaker). Evaluation of enteric methane mitigation strategies in cattle using invivo experiment and holistic life cycle assessment. Minnesota 83rd Nutrition Conference organized by the Department of Animal Science, University of Minnesota, and University of Minnesota Extension and held at Mankato Minnesota, 21-22 September, 2022.
- 2. Uddin ME (Invited Speaker). Evaluation of cattle diets and feed additives using holistic life cycle assessment approach. Presented during a webinar in June 2022 organized by the Nestle, USA.
- 3. Uddin ME (Invited Speaker). Research approach toward achieving dairy systems sustainability. Presented during an in-person seminar in June 2022 organized by the Department of Animal Science, Colorado State University, Fort Collins.
- 4. Uddin ME, Aguirre-Villegas HA, Laron RA, and Wattiaux MA. Life cycle assessment of milk: Effects of dietary forage and cow breed on greenhouse gas emissions. Invited speaker at a webinar

hosted by the Environmental Research Team, Dairy Management Inc., Rosemont, Illinois, USA, August 04, 2020.

- 5. Uddin ME and Wattiaux MA. Improving carbon and nitrogen utilization efficiencies of dairy cows using dietary approach at whole-farm scale. Invited Speaker at Professional Dairy Producers of Wisconsin (PDPW) conference, Madison, WI, USA, March 14-15, 2018.
- 6. **Uddin ME,** Meuwissen T and Veerkamp RF. Adjusting for heterogeneity of experimental data in genetic evaluation of dry matter intake in dairy cattle. Invited Speaker in a Symposium at RTG, The University of Göttingen, Göttingen, Germany, June 3-4, 2016.
- 7. Khan MAS, and **Uddin ME**. Feed supplementation strategies to improve productive and reproductive performances in small holder dairy system. Presented at Asian-Australasian Animal Production (AAAP) Congress held at Bangkok, **Thailand**, November 26-30, 2012.

TEACHING INTEREST AND PLAN FOR NEW COURSE

- ✓ Dairy Cattle Production
- ✓ Ruminant Nutrition and Metabolism.
- ✓ Sustainability and Food Systems Modeling (**planned to introduce as a new course**)

TEACHING EXPERIENCES

Fall-2022	Assigned Instructor (33-50% responsibility), South Dakota State University
	Course: Lab Techniques (13 Graduate Students, Taught in-person)
	Course: Introduction to Dairy Science (40 Undergraduates, Taught in-person)
Spring-2022	Assigned Instructor (50% responsibility), South Dakota State University
	Course: Dairy farm Operations II (21 Undergraduate senior, Taught in-person)
Fall-2021	Assigned Instructor (50% responsibility), South Dakota State University
	Course: Dairy farm Operations I (22 Undergraduate senior, Taught in-person)
	Course: Introduction to Dairy Science (30 Undergraduate freshmen, Taught in-person)
Spring-2021	Guest Instructor, University of California-Davis
1 0	Course: Sustainable Animal Agriculture, Level: Undergraduate (Virtual)
Fall-2020	Invited Guest Instructor, University of Wisconsin-Madison
	Course: Ruminant Nutrition Physiology, Level: Graduate students
Fall-2018	Teaching Assistant, University of Wisconsin-Madison
	Course: Ruminant Nutrition, Level: Undergraduate and graduate (22 participants).
2012-2014	Lecturer (full-time), Bangladesh Agricultural University
	As lecturer, I designed and sole-taught the following courses:
JulDec./2012 &	Course: Fundamentals of dairy science (Theory)
JulDec./2013	Level: Freshman year undergraduate (70 participants)
JanJun./2013 &	Course: Dairy cattle production (Theory)
JanJun./2014	Level: Senior year undergraduate (60 participants)
Iul -Dec /2012 &	Course: Elementary Dairy Science (Lab)
JulDec./2013	Level: Sophomore year undergraduate (35 participants)
$I_{on} I_{un} /2012$	Course: Dairy microhiology (Lab)
Jan Jun $/2013 \&$	L evel: Sophomore year undergraduate (30 participants)
JanJun./2014	Level. Sophomore year undergraduate (So participants)

ADVISING AND MENTORING EXPERIENCES

Jan 2022-Present	South Dakota State University Academic advisor of 4 graduate students and few undergraduates
2020-2021	University of California-Davis Mentor 2 graduate students
2017-2019	University of Wisconsin-Madison 3 dairy science junior, 1 animal science sophomore and 2 biological systems engineering junior undergraduates for their research project/independent study courses culminating in presentations at undergraduate symposia organized by the university.
2012-2014	Bangladesh Agricultural University 3 graduate and 3 undergraduate students to design and conduct research projects in animal nutrition. Project findings resulted in peer-reviewed journal articles.

PEDAGOGICAL TRAINING ATTENDED

15 & 17 February 2022	National Teaching Workshop series sponsored by the United States Department of Agriculture (USDA) and Association of Public and Land-grant Universities (APLU).
ADSA-meetings	Teaching Workshop organized by the American Dairy Science Association (ADSA) Meetings held in 2018, 2019, 2020 and 2021.
Eall 2019	Effective Teaching in an Internationally Diverse Classroom course offered by the
Fall-2018	DELTA Program, University of Wisconsin-Madison.

Project Role	Funding	Fund &	Project
U	Agency	duration	Title
M. E. Uddin (PI)	Native Microbial Inc.	\$184,938	Effect of feeding endo-microbial on enteric methane emissions in lactating dairy cows
M. E. Uddin (PI)	Zinpro Inc.	\$105,000	Effects of dietary isoacids supplementation on performances, enteric methane, efficiency, and fatty profiles in lactating dairy cows
M. E. Uddin (PI)	Cargill Inc.	\$247,649	Rumen fermentation kinetics and rumen microbiome responses to feeding varying amounts of a macro feed ingredient to lactating dairy cows

GRANTS AWARDED AS PI

Project	Funding	Fund &	Project
Role	agency	duration	Title
M. E. Uddin (PI), and Benoit St. Pierre (Co-PI) Collaborator: Dairy Producers	FFAR New Innovator in Food & Agriculture Research Award	\$435,000	Program title : Holistic evaluation of enteric methane mitigation strategies using life cycle assessment (Nomination submitted)
M. E. Uddin (PI), and Rebecca Larson (Co-PI) Collaborator: Dairy Producers	Sustainable Agriculture Research and Education (SARE) Grant	\$248,000	Evaluating sustainability of dairy production systems in South Dakota: Relationship between milk carbon footprint and farm profitability (Received invitation for full-proposal)
M. E. Uddin (PI) , David Clay and Benoit St. Pierre	USDA-NIFA (New Investigator)	\$503,377	Assessment of dietary and feed additive- based enteric methane mitigation strategies using holistic approach: Capturing tradeoffs and interactions between components of dairy production systems (Not funded)

SUBMITTED GRANTS PROPOSAL (Under Review/Not Funded Category)

FELLOWSHIP, AND AWARDS

Feb. 2019	University of Wisconsin-Madison Travel Grant (~\$2,500) to attend a training course on life cycle assessment at Wageningen University and Research in the Netherlands (11-15 February 2019).
Feb. 2018	University of Wisconsin-Madison Seminar Grant (\$3,000) to organize a seminar on 'International Mother Language Day'.
2012-2014	Dutch Koepon Foundation Fellowship (\$52,000) for 2 years at Wageningen University and Research and Norwegian University of Life Sciences.
2012	AusAID Travel Grant under International Seminar Support Scheme (\$1,500) to attend Asian-Australasian Animal Production Congress, Bangkok, Thailand, 29 November-04 December 2012.
2012	Prime Minister Gold Medal, University Grants Commission of Bangladesh.
2011-2012	National Science and Technology (NST) Fellowship, Ministry of Science and Technology, Peoples Republic of Bangladesh.
2009	University Grants Commission (UGC) Merit Award, Bangladesh.

SKILLS AND RELEVANT COURSEWORK (GRADUATE LEVEL)

Computing	R, ASREML, SAS, SimaPro (Life cycle assessment software).
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Modeling Life cycle assessment, meta-analysis, sensitivity, and uncertainty analysis.

Sampling & i) Air sampling for greenhouse gas measurements from manure chain (storage and crop-field) using static chamber method, and ii) feces and urine (total collection and spot sampling), saliva, milk, feed, and orts sampling in animal nutrition trial (Ruminants), iii) Neutral detergent fiber, acid detergent fiber, lignin, glucose, and starch for feed and fecal samples, iv) Ruminal ammonia-N and volatile fatty acids, v) manure ammonia, and vi) enteric methane using GreenFeed and respiration chamber.

UNIVERSITY SERVICES AND EXTRACURRICULAR ACTIVITIES

Dec. 2022-present	Search Committee Members , Recruitment of Dairy Production Professor & Assistant Manager-Dairy Research and Training Facility, South Dakota State University.
Oct. 2022-present	Advisor, Lab Safety Committee, Dairy and Food Science Department, South Dakota State University.
Oct. 2020-2021	Chair, Postdoc Research Symposium-2021 Organizing Committee, UC-Davis.
Aug. 2020-2021	Postdoc Member, Academic Planning and Development Committee, UC Davis.
Mar. 2020-2021	Vice-Chair, Postdoctoral Scholars Association, University of California-Davis.
2017-2018	President, Bangladesh Student Organization, University of Wisconsin-Madison.
2012-2014	Co-administrator at Student Dormitory, Bangladesh Agricultural University.
2007-2009	Executive Member and Publication Secretary , Badhan, a voluntary blood donation organization, Bangladesh Agricultural University.

JOURNAL/GRANT PROPOSAL REVIEWER

- ✓ **Journals**: Journal of Dairy Science, Journal of Cleaner Production, Journal of the ASABE, One Earth, Translational Animal Science, Applied Animal Science, Animal, Journal of Animal Science
- ✓ Major Grant: USDA NP 101 Grant Proposal Panel 4: Ruminant Nutrition (2022), Dairy Farmers of Canada Grant Proposal: Dairy Research Cluster 4 Initiative (2022).

PROFESSIONAL MEMBERSHIP

2017-present	Member, American Dairy Science Association.
JanDec. 2021	Member, National Postdoctoral Association (NPA), USA.
2012-2014	Member, Bangladesh Society for Animal Production Education and Research.

REFERENCES

Be available upon request