Contact Information

4203 Eagle View Ct.
Columbia, MO 65203

Phone: (573) 810-0112
Email: sougata_b@motmail.com
Sougata Bardhan | LinkedIn

Education

Doctor of Philosophy, Soil Science (Sep '05 – Jun'10)
The Ohio State University, Columbus, OH
Master of Science, Soil Science (Jan '03 – Aug '05)
The Ohio State University, Columbus, OH
Bachelor of Science, Agriculture and Animal Husbandry (Oct.'93 – Jun '97)
G. B. Pant University of Agri. And Tech., Pantnagar, India

Professional Experience

Associate Professor Tennessee State University, Nashville, TN	February 2025 -
Assistant Professor Lincoln University of Missouri, Jefferson City, MO	June 2021 – Jan 2025
Assistant Research Professor University of Missouri - Columbia, Missouri, USA	Jun 2015 – June 2021
Post-Doctoral Fellow University of Missouri - Columbia, Missouri, USA	Jun 2010 – Jun 2015
Graduate Research Assistant The Ohio State University, Columbus, OH	Jan 2003 - Jun 2010
Graduate Research Assistant University of Nebraska Lincoln, Lincoln, NE	May 2001 - Dec 2002

Teaching Experience

1.	Instructor	Fall 22, 24	Soil Management (G)
2.	Instructor	Spring 24	Soils around Us (UG)
3.	Instructor	Spring 22	Soil, Water, Air Conservation (UG)
4.	Instructor	Spring 20, 21, 22	Research Methods (UG)
5.	Instructor (MU Online)	Spring 18, 19	Ecol. Principles of Agroforestry (G)
6.	Instructor	Spring 2018	Ecology (UG)
7.	Instructor (MU)	Fall 2015	Intro. To Env. Science (UG)
8.	Guest Lecturer (Online)	Spring14-17	Ecol. Principles of Agroforestry (G)
9.	Soil Quality Workshop	Feb '12	Chinese Delegation, UM
10.	Teaching Assistant (OSU)	2005 - 2006	Intro. Soil Science – lab (UG)

Grants Funded

1. USDA, NIFA, 2024 – 2027, Building a Forest Farming Network to Support Greater Farm Diversity and Enhanced Ecosystem Services in Missouri, $749,846, **Principal Investigator**
2. NCR-SARE, 2023-2026, Sheep and Goats Master Training Program in Missouri, $91, 926, Co-Principal Investigator
3. NCR-SARE, 2023-2025, Fencing in Silvopasture for Sheep and Goat Production Across Missouri, $89,245, Co-Principal Investigator
4. NASA, MUREP DEAP, 2023 – 2026, Using Data Science to Understand Soil, Wildfire, & Social Disparity of Climate Change and Air Pollution, $1,498,099, **Principal Investigator**
5. NASA, MUREP PSI, 2023 – 2028, Digital Agriculture, Data Science, & Robotics: Applied Research and Training for Enhancing Motivation in Science, $424,808, **Principal Investigator**

6. USDA, Partnership in Climate Smart Commodities, 2023 – 2028, An Integrated Approach to Scaling-Up Climate-Smart Practices for Crop, Livestock and Agroforestry Production, $25,000,000, Co-Principal Investigator
7. USDA, Partnership in Climate Smart Commodities, 2023 – 2028, Biochar for Climate-Smart Farms in Missouri, $4,935,000, Co-Principal Investigator
8. USDA, Partnership in Climate Smart Commodities, 2022 – 2027, Scaling up the Industrial Hemp Supply Chain as Carbon Negative Feedstock for Fuel and Fiber, $5,000,000, Co-Principal Investigator
9. USDA, 1890 Multi-state Climate Change Research, 2022 – 2023, Climate Change: Impacts for Socially Disadvantaged Farmers, Landowners & Communities of Color, $100,000, Co-Principal Investigator
10. USDA, OREI, 2022 – 2025, Impact of Long-Term Cover Cropped Organic Farming Practices on the Development of Disease Suppressive Soils, $749,331, **Principal Investigator**
11. NCR-SARE, 2022-2025, More Than a Woodlot - Developing Natural Resource Professionals' Capacity to Support Forest Farming, $56,240, **Principal Investigator**
12. NASA, MUREP PSI, 2022 – 2023, Climate Change Impact on Agriculture and Ecosystem, $64,058, **Principal Investigator**
13. USDA, NIFA, 2021 – 2024, Developing a Framework for Spatial Modelling of Ok Decline in the Ozark Highlands, $589,854, **Principal Investigator**
14. NRCS, MO-CIG, 2018 – 2021, Ecosystem Services of Cover Crops, Riparian Buffers, and Crop Rotation with Biochar on Eroded Midwest Corn/Soybean Landscapes, $75,000, Co-Principal Investigator
15. USDA-NIFA HBCU Capacity Building Grant, USDA, 2018 – 2021, Variability of Soil Greenhouse Gas Emissions and Soil Microbial Diversity and Function in Conventional and Alternate Land Use Systems in Floodplain Soils, $592,211, **Principal Investigator** (MU)
16. IUSSTF, Indo-US Joint Clean Energy Research and Development Consortium, 2012 – 2017, Sustainable Biomass Production, $ 12.5 million (MU share $5.4 million) Co-Principal Investigator
17. Etimine USA, 2015 – 2016, Effects of Various Granular Boron Sources from Etimine USA Inc. on Biomass Yield, Plant Physiology, and Soil Quality for Wheat, Corn, and Soybean, $65,000, **Principal Investigator**
18. Tree Fund, Jack Kimmel International Grant, 2013 – 2014, Impact of Storm Water Runoff on Tree Roots, Physiology and Rhizosphere Microbial Diversity in Urban Forests, $10,000, **Principal Investigator**
19. Alumni Grants for Graduate Scholarship and Research, OSU. 2008 - 2010. Novel Genes for EPTC Degradation in Soil Metagenome. $1985, **Principal Investigator**
20. NCR-SARE Graduate Student Grant. 2004 – 2007. Assessing Agricultural Soil Health and Sustainability of Management Practices. $ 9,912 **Principal Investigator**

Graduate Students

1. Juliana Naa Norkor Noi – M.S., December, 2025, anticipated (Co-Advisor)
2. Ogundiji Tobiloba – M.S., May, 2025 (Co-Advisor)
3. Raelin Kronenberg – Ph. D., August, 2027, anticipated (Co-Advisor)
4. Gursewak Singh - M.S. August 2025, anticipated (Co-Advisor)
5. Arindam Mandal – M.S. December, 2024 (Advisor)
6. Bani Kumar Biswas - M.S. August 2025, anticipated (Co-Advisor)

7. Kurt Birchenough – M.S. December, 2024 (Advisor)
8. Saaruj Khadka – Ph. D., 2024 (Co-Advisor)
9. Jamshed Nasiri – Ph. D., 2023 (Committee)
10. Priyanka Sharma – Ph. D. 2021 (Co-Advisor)
11. Michael Borucke – M.S. June 2016 (Committee)

Book Chapter

1. Umakanth, A.V., **S. Bardhan**, B. Suresh Reddy, M. Ahuja. 2021. Biomass Feedstocks for Advanced Biofuels: Sustainability and Supply Chain Management, In Advanced Biofuel Technologies – Present Status, Challenges, and Future Prospects; Elsevier Publishing.
2. Didenko,N., V. Konovalova, S. Razzaghi, A. Bandaogo, **S. Bardhan** and A. Sundermeier. 2021. Cover Crops for Pests and Soil-borne Disease Control and Insect Diversity In Cover Crops and Sustainable Agriculture, Eds. Rafiq Islam and Bradford Sherman, CRC Press, Boca Raton, Florida, USA.
3. **Bardhan, S.,** S. Jose, L. Godsey. 2014. Cellulosic Biofuel in the United States: Targets, Achievements, Bottlenecks and Case Study of Three Advanced Biofuel Facility, Biomass and biofuels: Advanced Biorefineries for Sustainable Production and Distribution, Eds. Jose and Bhaskar.
4. Jose, S., H.P. Singh, D.R. Batish, R.K. Kohli, **S. Bardhan**. 2013. Invasive Plant Ecology: The Horse Behind the Cart? In: Invasive Plant Ecology, Eds. Jose, Singh, Batish, and Kohli, CRC Press, Boca Raton, Florida, USA.

Refereed Journal Publications

1. Aduloju, O., Pandey, A., Eivazi, F., **Bardhan, S.,** & Afrasiabi, Z. (2025). Evaluating the efficacy of thiolating agents for biochar surface modification. *Environments, 12*(3), 84.
2. Khadka, S., He, H. S., & **Bardhan, S.** (2024). Investigating the spatial pattern of white oak (*Quercus alba* L.) mortality using Ripley's K function across the ten states of the eastern US. *Forests, 15*, 1809.
3. Ansari, J., **Bardhan, S.,** Davis, M. P., Anderson, S. H., & Al-Awwal, N. (2024). Greenhouse gas emissions from riparian systems as affected by hydrological extremes: A mini-review. *Cogent Food & Agriculture, 10*(1)
4. **Bardhan, S.,** Udawatta, R., Jose, S., Gantzer, C., & Bobryk, C. W. (2024). Phospholipid fatty acid profiling for soil microbial community analysis in a soil conservation farm in Missouri. *Innovative Farming, 3*, 24.
5. Kronenberg, R., Lovell, S., Thapa, B., Spinka, C., Valdivia, C., Gold, M., & **Bardhan, S.** (2023). Survey of Missouri landowners to explore the potential of woody perennials to integrate conservation and production. *Land, 12*(10), 1911.
6. Bolan, N., Srivastava, P., Rao, C. S., Satyanaraya, P. V., Anderson, G. C., Bolan, S., Nortjé, G. P., Kronenberg, R., **Bardhan, S.,** Abbott, L. K., & Zhao, H. (2023). Distribution, characteristics, and management of calcareous soils. In *Advances in Agronomy* (pp. 81–130).
7. Ansari, J., **Bardhan, S.,** Anderson, S. H., & Eivazi, F. (2023). Selected enzyme activities under different land use management in lower Missouri River floodplain soils. *Communications in Soil Science and Plant Analysis*, 1–13.
8. Ansari, J., **Bardhan, S.,** Eivazi, F., Anderson, S. H., & Mendis, S. S. (2023). Bacterial community diversity for three selected land use systems as affected by soil moisture regime. *Applied Soil Ecology, 192*, 105100.
9. Ansari, J., Davis, M. P., Anderson, S. H., Eivazi, F., & **Bardhan, S.** (2022). Greenhouse gas emissions in conventional and alternate land use systems in floodplain soils. *Water, Air, & Soil Pollution, 234*, 227–235.

10. Sumner, W., & **Bardhan, S.** (2022). Soil nutrient dependency of biochemical pathways for synthesis of plant compounds. *Research Biotica, 4*, 1–4.
11. Salceda, M., Udawatta, R. P., Nelson, K. A., Mendis, S. S., & **Bardhan, S.** (2022). Spatial and temporal variability of soil organic carbon on a corn–soybean watershed with 23 years of agroforestry. *Agronomy Journal, 114*(1), 440–451.
12. Burli, P., Lal, P., Wolde, B., Jose, S., & **Bardhan, S.** (2021). Perceptions about switchgrass and land allocation decisions: Evidence from a farmer survey in Missouri. *Land Use Policy, 109*, 105615.
13. Thomas, A. L., Kallenbach, R., Sauer, T. J., Brauer, D. K., Burner, D. M., Coggeshall, M. V., Dold, C., Rogers, W., **Bardhan, S.,** & Jose, S. (2020). Carbon and nitrogen dynamics within four black walnut alley cropping sites across Missouri and Arkansas, USA. *Agroforestry Systems, 94*, 1625–1638.
14. Burli, P., Lal, P., Wolde, B., Jose, S., & **Bardhan, S.** (2019). Factors affecting willingness to cultivate switchgrass: Evidence from a farmer survey in Missouri. *Energy Economics, 80*, 20–29.
15. Weerasekara, C. S., Kitchen, N. R., Jose, S., Motavalli, P. P., **Bardhan, S.,** & Mitchell, R. B. (2018). Yield of lignocellulosic warm-season grasses affected by nitrogen and harvest management. *Agronomy Journal, 110*(3), 890–899.
16. **Bardhan, S.,** Chattopadhyay, A. K., Jose, S., & Chandrasoma, J. (2017). Impact of boron additions in marginal soils for growth of corn, wheat, soybean, and switchgrass. *International Journal of Current Agricultural Science, 7*, 155–159.
17. Bobryk, C. W., Rega, C. C., **Bardhan, S.,** Farina, A., He, H. S., & Jose, S. (2016). A rapid soundscape analysis to quantify conservation benefits of temperate agroforestry systems using low-cost technology. *Agroforestry Systems, 90*, 997–1008.
18. Bunyan, M., **Bardhan, S.,** Singh, A., & Jose, S. (2015). Effect of topography on the distribution of tropical montane forest fragments: A predictive modeling approach. *Journal of Tropical Forest Science, 27*, 30–38.
19. Udawatta, R., Kremer, R., Nelson, K., Jose, S., & **Bardhan, S.** (2014). Soil quality indicators of a mature alley cropping agroforestry system in temperate North America. *Communications in Soil Science and Plant Analysis, 45*, 2539–2551.
20. Roberts, B. A., Fritschi, F. B., Horwath, W. R., & **Bardhan, S.** (2014). Nitrogen mineralization potential as influenced by microbial biomass, cotton residues, and temperature. *Journal of Plant Nutrition, 38*, 311–324.
21. **Bardhan, S.,** Jose, S., Udawatta, R., & Fritschi, F. B. (2013). Microbial community diversity in a 21-year old temperate alley cropping system. *Agroforestry Systems, 87*, 1–11.
22. Motavalli, P., Nelson, K., Udawatta, R., Jose, S., & **Bardhan, S.** (2013). Global achievements on sustainable land management. *International Soil and Water Conservation Research, 1*, 1–10.
23. Motavalli, P. P., Udawatta, R., & **Bardhan, S.** (2013). Apparent soil electrical conductivity used to determine soil phosphorus variability in poultry litter-amended pastures. *American Journal of Experimental Agriculture, 3*(1), 124–141.
24. Motavalli, P. P., Nelson, K. A., & **Bardhan, S.** (2013). Development of a variable source N fertilizer management strategy using enhanced efficiency N fertilizers. *Soil Science, 178*, 693–703.
25. **Bardhan, S.,** & Jose, S. (2012). Potential for floodplains to sustain a second generation biofuel feedstock production ecosystem. *Biofuels, 3*(5), 575–588.
26. Jose, S., & **Bardhan, S.** (2012). Agroforestry for biomass production and carbon sequestration: An overview. *Agroforestry Systems, 86*, 105–111.

27. **Bardhan, S.,** Jose, S., Jenkins, M., Webster, C., Stehn, S., & Udawatta, R. (2012). Microbial community structure in soils receiving different rates of acid deposition in spruce-fir forests in the Smoky Mountains. *Applied Soil Ecology, 61*, 60–68.
28. **Bardhan, S.,** Jose, S., Biswas, S., Kabir, K., & Rogers, W. (2012). Biodiversity in home gardens in Bangladesh – A comparison. *Agroforestry Systems, 85*, 29–34.
29. Bunyan, M., **Bardhan, S.,** & Jose, S. (2012). The Shola (tropical montane forest)-grassland ecosystem mosaic of Peninsular India: A review. *American Journal of Plant Sciences, 3*, 1632–1639.
30. Bilen, S., Bilen, M., & **Bardhan, S.** (2011). Effect of boron management on soil microbial properties and enzyme activities in Turkish soils. *African Journal of Biotechnology, 10*(27), 5311–5319.
31. **Bardhan, S.,** Chen, Y., & Dick, W. A. (2009). Recycling for sustainability: Plant growth media from coal combustion products, biosolids and composts. *International Journal of Civil and Environmental Engineering, 1*(4), 177–183
32. **Bardhan, S.,** Watson, M., Dick. W.A. (2008). Plant Growth Response in Experimental Soilless Mixes Prepared from Coal Combustion Products and Organic Waste Materials. *Soil Science*, 173, 491 –500.

Non-Refereed/ Extension Publications

1. **Bardhan, S.,** and Kronenberg, R. 2023. What Is Forest Farming, Lincoln University Cooperative Extension, Agroforestry, Fact Sheet.
2. **Bardhan, S.,** and Kronenberg, R. 2023. Forest Farming Site Selection and Preparation Guidelines, Lincoln University Cooperative Extension, Agroforestry, Guide Sheet.
3. **Bardhan, S.,** and Kronenberg, R. 2023. Non-Timber Forest Product (NTFP) Highlight: Sugar Maple, Lincoln University Cooperative Extension, Agroforestry, Fact Sheet.
4. **Bardhan, S.,** and Kronenberg, R. 2023. Non-Timber Forest Product (NTFP) Highlight: Mayapple, Lincoln University Cooperative Extension, Agroforestry, Fact Sheet.
5. **Bardhan, S.,** and Kronenberg, R. 2023. Non-Timber Forest Product (NTFP) Highlight: Ramps, Lincoln University Cooperative Extension, Agroforestry, Fact Sheet.
6. **Bardhan, S.,** and Kronenberg, R. 2023. Non-Timber Forest Product (NTFP) Highlight: Goldenseal, Lincoln University Cooperative Extension, Agroforestry, Fact Sheet.
7. **Bardhan, S.,** and Kronenberg, R. 2023. Non-Timber Forest Product (NTFP) Highlight: Ginseng, Lincoln University Cooperative Extension, Agroforestry, Fact Sheet.
8. **Bardhan, S.,** and Kronenberg, R. 2023. Non-Timber Forest Product (NTFP) Highlight: Black Cohosh, Lincoln University Cooperative Extension, Agroforestry, Fact Sheet.
9. **Bardhan, S.,** and Kronenberg, R. 2023. Non-Timber Forest Product (NTFP) Highlight: False Unicorn Root, Lincoln University Cooperative Extension, Agroforestry, Fact Sheet.

Conference Presentations & Proceeding

1. Kronenberg, R, and **S. Bardhan.** (2023). Impact of Timber Stand Improvement and Prescribed Burn on Forest Farming of Non-Timber Forest Products and Soil Ecological Properties. Missouri Natural Resources Conference, 7 - 9 Feb., Osage Beach, MO, USA.

2. **Bardhan, S**., Ansari, J., & Eivazi, F. (2023) Impact of hydrological extremes on soil microbial community dynamics in soils maintained under different land use practices. Missouri Natural Resource Conference, Lake Ozark, MO.
3. Khadka, S., H.S. He, & **S**. **Bardhan.** (2023) Identifying Biotic and Abiotic Factors Affecting White Oak (Quercus alba) Mortality across the Eastern United States. Missouri natural Resource Conference, Lake Ozark, MO.
4. Ansari, J, S.H. Anderson, M.P. Davis, F. Eivazi, and **S**. **Bardhan.** (2023). Effect of Land Management on Greenhouse Gas Emissions in Missouri River Floodplain. 14th Annual Agroforestry Symposium, 18 January, University of Missouri, Columbia, Missouri, USA.
5. Ansari, J., **S**. **Bardhan**, M. P. Davis, S.H. Anderson, and F. Eivazi. (2023). Soil Greenhouse Gas Emissions from Riparian Systems in Missouri River Floodplain. Missouri Natural Resources Conference, 7 - 9 Feb., Osage Beach, MO, USA.
6. Ansari, J., **S**. **Bardhan**, M. P. Davis, S.H. Anderson, and F. Eivazi. (2022). Greenhouse Gas Emissions from Conventional and Alternate Land Use Systems in Floodplain Soils, ASA-CSSA-SSSA International Annual Meeting, November 6 – 9, 2022, Baltimore, MD.
7. **Bardhan, S.**, (2023). Climate Change Impact on Agriculture and Ecosystem: Lessons from a Residential High School Summer Institute, ASA-CSSA-SSSA International Annual Meeting, November 6 – 9, 2022, Baltimore, MD.
8. **Bardhan, S**. (2022) Soil Health Impact on Human Health. Two-week course at NITTE University Center for Science and Engineering Research. Mangalore, India
9. A Ansari, J., **S**. **Bardhan**, S.H. Anderson, and F. Eivazi. (2022). Effect of Land Management on Soil Enzyme Activity and Greenhouse Gas Emissions in Missouri River Floodplain. 22nd World Congress of Soil Science, 31 July - 5 August, Glasgow, U.K.
10. Ansari, J., S.H. Anderson, M.P. Davis, F. Eivazi, and **S. Bardhan**. (2022). Greenhouse Gas Emissions in Conventional and Alternate Land Use Systems in Floodplain Soils. CAFNR Research Day, College of Agriculture, Food, and Natural Resources at the University of Missouri, 6 May, University of Missouri, Columbia, Missouri, USA.
11. nsari, J., S.H. Anderson, F. Eivazi, and **S. Bardhan**. (2022). Soil Greenhouse Gas Emissions and Soil Enzyme Activity as Affected by Land Management in Missouri River Floodplains. The 13th Annual Agroforestry Symposium, The Center for Agroforestry at the University of Missouri, 20 January, Columbia, Missouri, USA.
12. **Bardhan**, **S.,** J. Ansari, and F. Eivazi. (2022). Impact of Hydrological Extremes on Soil Soil Microbial Community Dynamics in Soils Maintained Under Different Land Use Practices. Missouri Natural Resources Conference, Feb 1 – 3, 2022, Margheritaville, MO, (Oral).
13. Khadka, S., H.S. He, and **S. Bardhan**. (2022). Spatial Patterns of Oak Mortality in Missouri Detected Using Multicycle Forest Inventory and Analysis Data. Missouri Natural Resources Conference, Feb 1 – 3, 2022, Margheritaville, MO, (Poster).
14. Ansari, J., S. H. Anderson, F. Eivazi, and **S. Bardhan**. (2021). Soil Enzyme Activity Affected by Seleted Land Management in Missouri River Floodplain. ASA-CSSA-SSSA International Annual Meetings, Nov 7 – 10, 2021, Salt Lake City, UT, (Poster).

15. Ansari, J., S. H. Anderson, M.P. Davis, F. Eivazi, and **S. Bardhan**. (2021). Soil Greenhouse Gas Emissions Affected by Selected Land Management. ASA-CSSA-SSSA International Annual Meetings, Nov 7 – 10, 2021, Salt Lake City, UT, (Poster).
16. Ansari, J., S. H. Anderson, F. Eivazi, and **S. Bardhan**. (2020). Floodplain Land Management Effects on Soil Enzyme Activity. ASA-CSSA-SSSA International Annual Meetings, Nov 8 – 11, 2020, Phoenix, AZ, (Poster).
17. Thomas, A.L., R. Kallenbach, T.J. Sauer, D.K. Brauer, D.M. Burner, M.V. Coggeshall, C. Dold, W. Rogers, **S. Bardhan,** and S. Jose. (2019). Carbon Dynamics within Four Black Walnut Alley Cropping Sites across Missouri and Arkansas, USA. Fourth World Congress on Agroforestry, Montpellier, France (Poster).
18. Sharma P., **S. Bardhan**, and S. Jose. (2019). Biodegradable Fabric Root Bags as an Alternative Tree Planting System in Difficult Landscapes. 10th Annual UMCA Agroforestry Symposium; University of Missouri-Columbia
19. **Bardhan, S.,** and S. Jose. (2017). Bioenergy Alley Cropping System: Establishment on Marginal Fallowland in Missouri River Floodplain. ASA-CSSA-SSSA International Annual Meetings, Oct 21 - 25, 2017, Tampa, FL, (Poster).
20. **Bardhan, S.,** S. Jose, N.R. Kitchen, A. L. Thompson. (2016). Partitioning of Applied Nitrogen in Corn and Switchgrass in Soils of Variable Depths in Central Missouri. ASA-CSSA-SSSA International Annual Meetings, Nov 6 – 9, 2016, Phoenix, AZ, (Poster).
21. **Bardhan, S.,** A.K. Chattopadhyay, and S. Jose. (2015). Impact of Boron Additions in Marginal Soils for Growth of Corn, Wheat, Soybean, and Switchgrass. ASA-CSSA-SSSA International Annual Meetings, Nov 15 – 18, 2015, Minneapolis, MN, (Poster).
22. **Bardhan, S.,** S. Jose, N.R. Kitchen, A. L. Thompson. (2015). Nitrogen Dynamics in Corn and Switchgrass Production Influenced By Soils of Varying Depths in Central Missouri. ASA-CSSA-SSSA International Annual Meetings, Nov 15 – 18, 2015, Minneapolis, MN, (Poster).
23. Weerasekara, C., N. Kitchen, S. Jose, **S. Bardhan**. (2015). Nitrogen and Harvest Impact on Biomass Yield of Established Switchgrass. ASA-CSSA-SSSA International Annual Meetings, Nov 15 – 18, 2015, Minneapolis, MN, (Poster).
24. Kadam, S., **S. Bardhan,** A. Abril, W. Vermerris, S. Jose, and F. Fritschi. (2015). Gene Expression Changes in Root Tissues of Sweet Sorghum (Sorghum bicolor L. Moench) in Response to Waterlogging. ASA-CSSA-SSSA International Annual Meetings, Nov 15 – 18, 2015, Minneapolis, MN, (*Poster*)
25. **Bardhan, S.,** S. Jose, N.R. Kitchen, A. L. Thompson. (2014). Nitrogen Uptake by Corn and Switchgrass Plants in Soils of Varying Depths in Central Missouri. ASA-CSSA-SSSA International Annual Meetings, Nov 1 – 5, 2014, Long Beach, CA, USA.(*Oral*)
26. **Bardhan, S.,** and S. Jose. (2014). Impact of Storm Water Runoff on tree Roots, Physiology and Rhizosphere Microbial Diversity in Urban Forests. ASA-CSSA-SSSA International Annual Meetings, Nov 1 – 5, 2014, Long Beach, CA, (*Poster*)
27. Weerasekara, C., **S. Bardhan**, S. Jose. (2014). Impact of Biochar Addition on Nitrogen Dynamics and Growth of Three Bioenergy Grasses. ASA-CSSA-SSSA International Annual Meetings, Nov 1 – 5, 2014, Long Beach, CA, USA.(*Poster*)
28. **Bardhan, S.,** and S. Jose. (2014). Indo-US Joint Clean Energy Research and Educational Consortium – WP1 Project Report, 19 February, Indian Institute of Chemical Technology (IICT), Hyderabad, India. (*Oral*)

29. **Bardhan, S.,** S. Jose, and C.W. Bobryk. (2014). Soundscape and soil bacterial diversity in alley cropping, silvopasture, forest, and conventional agriculture systems. World Congress on Agroforestry - *Biodiversity and agroforested habitats*, 10-14 February, New Delhi, India. (*Poster*)
30. **Bardhan, S.,** and S. Jose. (2014). Physiological response of switch grass for bioenergy alley cropping in soils of varying depths in Central Missouri. World Congress on Agroforestry - *The agroforestry of dry and degraded lands*, 10-14 February, New Delhi, India. (*Oral*)
31. Santos, M. J. C., **S. Bardhan,** F. R. Santos, and S. Jose. (2014). Comparison between biomass yield and SOC in young agroforestry systems of varying chronosequence in Sergipe, Brazil. World Congress on Agroforestry - *Increasing food production through trees on farms*, 10-14 February, New Delhi (*Poster*)
32. Santos, F. R., M. J. C. Santos, **S. Bardhan,** and S. Jose. (2014). Establishment of silvopastoral systems for growing poultry in rural communities of Sergipe, Brazil, World Congress on Agroforestry - *Building livelihoods on tree products*, 10-14 February, New Delhi, India. (*Poster*)
33. **Bardhan, S.,** and S. Jose. (2013). Physiological Response of Woody and Herbaceous Biomass Feedstock Crops to Flooding. ASA-CSSA-SSSA International Annual Meeting, Nov3-7, Tampa, FL (*Oral*)
34. **Bardhan, S.,** and S. Jose. (2013). Alley Cropping Systems for Biomass Production in River Floodplains. ASA-CSSA-SSSA International Annual Meeting, Nov 3-7, Tampa, FL (*Poster*)
35. **Bardhan, S.,** S. Jose, and C. W. Bobryk. (2013). Comparison of Microbial Diversity and Soil Respiration among Alley Cropping, Silvopasture, Pasture, and Conventional Agricultural Systems. ASA-CSSA-SSSA International Annual Meeting,Nov3-7, Tampa, FL(*Poster*)
36. **Bardhan, S.,** K.V. V Tindall, and C.H. Lin. (2013). Water Quality and Insecticide Efficacy of Rice Seed Treated With An Insecticide Seed Treatment When Seeded in Soil Amended With Biochar. ASA-CSSA-SSSA International Annual Meeting, Nov 3-7, Tampa, FL(*Poster*)
37. **Bardhan, S**., and S.Jose. (2013). Evaluation of Woody and Herbaceous Biomass Feedstock Species for Midwestern United States Floodplains, 12th Annual Southern Bioproducts Conference, September, 7-18, 2013, Tunica, MS (*Poster*)
38. **Bardhan, S**., and S. Jose. (2013). Screening of Common Herbaceous and Woody Biomass Feedstock Species for Flood Tolerance. SEC Energy Symposium, Feb 10 – 12, 2013, Atlanta, GA (*Poster*)
39. Bardhan, S., S.H. Conditt, M. Roberts, and C. Hill. (2012). Resources for Transition from Post-Doctoral Position to Faculty or a Permanent Position – Opportunities and Challenges. National Postdoctoral Association Annual Meeting, March 16 – 18, San Francisco, CA.
40. **Bardhan, S**., J. Donahue, S. Jose, and F. Fritschi. (2012). Impact of Poultry Litter and N Fertilizer on Microbial Diversity in Soybean Fields in Central Missouri. ASA-CSSA-SSSA International Annual Meeting, Oct 21-24, Cincinnati, OH (*Poster*)
41. **Bardhan, S**., S. Jose, R. Udawatta, and F. Fritschi. (2012). Microbial Community Diversity in Alleys and Tree Rows in a 20 Year Alley Cropping System in North Eastern Missouri. ASA-CSSA-SSSA International Annual Meeting, Oct 21-24, Cincinnati, OH (*Poster*)
42. **Bardhan, S**., S. Jose, and M. Coggeshall. (2012). Screening of Common Herbaceous and Woody Biomass Feedstock Species for Flood Tolerance. ASA-CSSA-SSSA International Annual Meeting, Oct 21-24, Cincinnati, OH (*Poster*)

43. **Bardhan, S.**, S. Jose, R. Udawatta, and F. B. Fritschi. (2012). Microbial Community Diversity in a 21-Year-Old Temperate Alley Cropping System.3rd Annual Agroforestry Symposium, 11-12 January, University of Missouri.(*Poster*)
44. **Bardhan, S**., S. Jose, M. Jenkins, C. Webster, R. Udawatta, and S. E. Stehn. (2011). Microbial community diversity and composition across a gradient of soil acidity in Appalachian Mountains. 2nd Annual Agroforestry Symposium, 12-13 January, University of Missouri Columbia, (*Poster*)
45. **Bardhan, S**., and W.A. Dick. (2009). Community Analysis of Soil Microorganisms Capable of Enhanced EPTC and Atrazine Degradation. ASA-CSSA-SSSA International Annual Meeting, Nov 1 - 5, Pittsburgh, PA (*Poster*)
46. **Bardhan, S**., and W. A. Dick. (2008). Bacterial Community Analysis using DGGE of 16SrDNA in organic, intensive and conventional agroecosystems. ASA-CSSA-SSSA International Annual Meeting, Oct5-9, Houston, TX (*Poster*)
47. **Bardhan, S**., T, Moore, and W. A. Dick. (2007). Soil Metagenome: Novel Genes for Atrazine Degradation. ASA-CSSA-SSSA International Annual Meeting, Nov 4–8, New Orleans, LA. (*Poster*)
48. **Bardhan, S**., and Dick, W. A. (2006). A quantitative measure of total bacterial community diversity in disturbed and undisturbed soil ecosystems. ASA-CSSA-SSSA Annual Meetings, Nov 12-16, Indianapolis, IN. (*Poster*)
49. **Bardhan, S**., L. Chen, andW.A.Dick. (2005). Soilless Media Created from Coal Combustion Products and Organic Composts: Environmental and Chemical Properties. ASA-CSSA-SSSA International Annual Meeting, Nov 6–10, Salt Lake City, UT (*Poster*)
50. **Bardhan, S**., L. Chen, and W. A. Dick. (2004). Plant Growth Responses to Potting Media Prepared from Coal Combustion Products (CCPs) Amended with Compost. ASA-CSSA-SSSA International Annual Meeting, Oct 31–Nov 4, Seattle, WA. (*Poster*)
51. **Bardhan, S**. (2005). Soilless Media Created from Coal Combustion Products and Organic Waste. Proceedings of the 19th Edward F. Hayes Graduate Research Forum, 16 April, 2005 Columbus, OH (*Proceedings*).
52. Dick, W.A., L. Chen, J. Bigham, B. Slater, Y. B. Lee, C. Ramsier, **S. Bardhan**, Y. Chen, and S. Nelson, Jr. (2004). Agricultural and horticultural uses of FGD-gypsum and fly ash. Proceedings of the 8th International Gypsum and Fly Ash Conference, 21-22 June, 2004 Toronto (Ontario), Canada (*Proceedings*).
53. Elgersma, K., **S. Bardhan**, A. Kochsiek, J. Knops. (2004). Bt and non-Bt corn varieties do not differ in lignin content or litter decomposition rate, Ecological Society of America annual meeting. (*Poster*)

Invited Lectures

1. Jose, S., and **S. Bardhan.** MRABC: The Mississippi/Missouri River Advanced Biomass/Biofuel Consortium for a Sustainable Bioeconomy, 18 February, BioAsia 2014, Hyderabad, India.
2. **Bardhan, S.,** and S. Jose. Sustainable Cropping Systems: Economic and Environmental Benefits from Agroforestry, Silvopasture, and Alley Cropping Systems. January 27, 2014, Calcutta University, Kolkata, West Bengal, India.
3. **Bardhan, S.,** and S. Jose. Sustainable Cropping Systems: Economic and Environmental Benefits from Agroforestry, Silvopasture, and Alley Cropping Systems. January 29, 2014, Bidhan Chandra Krishi Viswa Vidyalaya (BCKV), Mohanpur, West Bengal, India.

4. Motavalli, P., K.Nelson, R.Udawatta, S.Jose, and **S**. **Bardhan**.2012. Global Achievements on Sustainable Land Management. Scientific Workshop on Sustainable Land Management to Enhance Food Production of APEC Members Chiang Mai, Thailand, November28 – 30, 2012
5. **Bardhan, S**., S. Jose, M. Jenkins, C. Webster, R. Udawatta, and S. E. Stehn. 2011. Microbial community diversity and composition across a gradient of soil acidity in spruce-fir forests of the southern Appalachian Mountains. International Conference on Advances in Ecological Research, Bikaner, India, Dec 19 -21, 2011
6. **Bardhan, S**., and W.A. Dick. 2009. Addition of FGD Gypsum During Composting to Conserve Nitrogen and Create a Soilless Growth Mix. Agricultural uses of FGD gypsum workshop, Indianapolis, IN, November 17-19, 2009.

Awards/ Honors

- Second Prize in SEC Energy Symposium poster competition, 2013, Atlanta, GA
- University of Missouri, Innovation Award, 2017
- Induction to Gamma Sigma Delta Honor Society, 2008
- Induction to the Sigma-Xi honor Society, 2007
- First Prize, 19th Annual Edward F. Hayes Graduate Research Forum, OSU, 2005.
- Second Prize in Minority Student Poster Competition, 2005
- Second Prize in S3 Soil Biology Graduate Student Poster Competition, 2005.
- Third prize in the Graduate Student Poster Competition, OARDC Annual Conference, 2004.

Research Experience

Associate Professor (February 2025 – Present, Tennessee State University, Nashville, TN)

- Regenerative agriculture and soil health
- Impact of aboveground plant species on root exudation, nutrient cycling, biodegradation, and quorum sensing
- Forest farming and forest management for enhancing non-timber forest products.
- Determine the carbon sequestration potential of biochar produced on-field from pine residues.

Functional Responsibilities

- Leading soil health research program at Tennessee State University.
- Project administration and management of collaborative research projects..
- Mentoring postdoctoral scholars and graduate students.
- Associate Editor for several journals – Applied and Environmental Letters, Innovative Farming, Research Biotica.

Assistant Professor (June 2021 – Present, Lincoln University, Jefferson City)

- Forest farming and forest management for enhancing non-timber forest products.
- Spatial modeling of oak decline in the Ozark highlands.
- Using Data Science to Understand Soil, Wildfire, & Social Disparity of Climate Change and Air Pollution
- Impact of cover crop combinations and management on soil and ecosystem services in organic cropping system.
- Determine the carbon sequestration potential of biochar produced on-field from pine residues.

Functional Responsibilities

- Led the McIntire-Stennis program at Lincoln University.
- Project administration and management of collaborative research projects funded by NASA, NRCS, NCR-SARE, and USDA.
- Lead forest management extension program at Lincoln University.
- Mentoring postdoctoral scholars and graduate students.
- Associate Editor for several journals – Applied and Environmental Letters, Innovative Farming, Research Biotica.

Assistant Research Professor (June 2015 – May 2021, University of Missouri, Columbia)

- Evaluate soil biological diversity and function in different land use systems.
- Quantify nitrogen use efficiency in corn and switch grass in soils of varying depths using ^{15}N labeled nitrogen fertilizer.
- Establish a large scale poplar (cottonwood) biomass alley cropping trial in a river floodplain. Secondly, evaluate the resource utilization (i.e. solar energy) by creating alleys in different orientations.
- Use soundscape diversity to differentiate land use management practices. This method could be used as a novel indicator tool to compare and contrast land use practices using the complexity of sounds.

Functional Responsibilities

- Manage USDA funded research project evaluating greenhouse gas emission influenced by land-use practices.
- Study the effect of biochar amendment in marginal soils on plant, soil, and microbial response.
- Mentored graduate students and undergraduate assistants.

Postdoctoral Research Fellow (June 2010 – June 2015, University of Missouri, Columbia)

- Monitor soil Ca and Al concentration in Spruce-Fir forests, along a gradient of elevation of the Great Smoky Mountain National Park.
- Evaluate microbial diversity in the high elevation Smoky Mountains.
- Establish flood tolerance studies in the flood lab at the Horticulture and Agroforestry Research Center, New Franklin, MO. Four different species were tested for flood tolerance which included two woody (poplar and willow) and two grasses (sorghum and switch grass)
- Study the impact of soil depth on photosynthetic response of switch grass and corn using LI-COR 6400 portable photosynthesis system.

Functional Responsibilities

- Improved my knowledge and kept abreast with new and upcoming scientific communications by learning new research tools and instrument.
- Mentored mixed group of graduate and under graduate students.
- Assisted in proposal writing for NSF, USDA, DOE, BARD, NIFA and contributed significantly towards making budgets.

- Reviewed papers for many prestigious journals.
- Honed my public speaking and communication skills by presenting posters, papers and talks at various national, international, and world conferences.

Technical Proficiency and Strengths

- Teaching, research, extension, and development of various agroforestry research (silvopasture, forest farming, and alley cropping) projects at Lincoln University.
- Highly diverse educational and technical background in soil science, microbial ecology, biofuel crop production, soil fertility, ecosystem sustainability, and bioinformatics that brings interdisciplinary knowledge and skills to bridge agronomy to ecosystem sciences.
- Extensive work experience in field experiments, laboratory techniques, soil and plant analysis, PCR, Gel electrophoresis, DNA/RNA extraction, DGGE, DNA sequencing.
- Strong fundamentals on soil science in various aspects such as fertility, carbon sequestration, microbial ecology with theoretical and practical experience and their relationship with biotic and abiotic components.
- Experienced in calibrating, standardizing and characterizing using tools like Gas Chromatograph (GC), ICP - Atomic Emission Spectroscopy (ICP-AES), Solid Phase Extraction (SPE), Thermal Cycler, Electrophoresis, DCode Mutation Detection (DGGE), Nanodrop, Elisa
- Amicable team player with outstanding communication skills.
- Well-versed in technology innovation, intellectual property protection, and corporate entrepreneurship.
- 2 book chapters, 20 published refereed journal publications (6 in pipe-line), 28 Conference presentations.

Professional/ Reviewer Activities

- Associate Editor – Applied and Environmental Letters (AEL) journal
- Editorial Board Member, International Journal of Research in Agricultural Science
- Editorial Board Member, Innovative Farming
- Editorial Board Member, Research Biotica
- Co-Chair, Missouri University Postdoctoral Association, 2011 – 2013
- Chair, Sustainability and Environmental Responsibility Committee, OSU
- Student Representative, Soil Science Society of America (SSSA) Div S3
- Student Representative, Soil Science Graduate Studies Committee, OSU
- School Representative, OSU Research and Graduate Council
- School Representative, OSU Senate
- Reviewer for Journal of Environmental Quality, Soil Biology and Biochemistry, Soil Science Society of America Journal, Applied Soil Ecology, PLOS 1, Agroforestry Systems, Chemosphere, Ecological Indicators, Landscape and Urban Planning, World Journal of Microbiology & Biotechnology, International Journal of Scientific Research in Environmental Sciences, African Journal of Microbiology, Diversity, University of Missouri Research Board.