

Brief Resume of Dr. Koushik Banerjee

**Dr. Koushik Banerjee, M.Sc. (Ag.), Ph.D.,
Scientist**

**ICAR-Mahatma Gandhi Integrated Farming Research
Institute (MGIFRI), Piprakothi- 845429, Motihari, East
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Born: West Bengal, India; Category: General



Research Specialization

Crop weather relation, climate change, remote sensing, thermography, multivariate analysis in crop stress characterization

Academic Background

2010-2014 B.Sc. (Ag.) Hons. 1st Class, Bidhan Chandra Krishi Viswavidyalaya
2014-2016 M.Sc. (Ag.) in Agricultural Physics, 1st Class I.A.R.I, New Delhi
2016-2020 Ph.D. (Ag.) Agricultural Physics, 1st Class I.A.R.I, New Delhi

Professional Service Experience

2020 (Oct)-2021 (Jan) Scientist ICAR- NAARM
2021 (Jan)- till Scientist ICAR- MGIFRI

Awards, Honours & Recognitions

2014 ICAR- Junior Research Fellowship Award- Physical Science, AIR-6
2016 ICAR- Senior Research Fellowship Award- Agricultural Meteorology, AIR-4
2016 Best Poster presentation award at 4th International Agronomy Congress
2020 Agricultural Research Service- ARS- Agricultural Meteorology, AIR-1
2022 IARI Merit Medal Award for outstanding performance in PhD in Agricultural Physics.
Best paper presentation award at 1st International Farming Systems
2025 Conference: Transforming Food, Land and Water Systems under Global Climate Change 07-09 March, 2025, ICAR-IIFSR, Modipuram.

Publications

Total 33: Research papers 20, Books/ Book Chapters 13,
Google Scholar Citations: Total citations 746, H-index 11, i10 index 13

Publications

Research papers:

1. **Banerjee, K.**, Krishnan, P. and Mridha, N., 2018. Application of thermal imaging of wheat crop canopy to estimate leaf area index under different moisture stress conditions. *Biosystems engineering*, 166, pp.13-27.
2. **Banerjee, K.** and Krishnan, P., 2020. Normalized Sunlit Shaded Index (NSSI) for characterizing the moisture stress in wheat crop using classified thermal and visible images. *Ecological Indicators*, 110, p.105947.

3. **Banerjee, K.**, Krishnan, P. and Das, B., 2020. Thermal imaging and multivariate techniques for characterizing and screening wheat genotypes under water stress condition. *Ecological Indicators*, 119, p.106829.
4. Chattopadhyay, A., Singh, A.P., Singh, S.K., Barman, A., Patra, A., Mondal, B.P. and **Banerjee, K.**, 2020. Spatial variability of arsenic in Indo-Gangetic basin of Varanasi and its cancer risk assessment. *Chemosphere*, 238, p.124623.
5. Singh, R.N., Krishnan, P., Singh, V.K. and **Banerjee, K.**, 2022. Application of thermal and visible imaging to estimate stripe rust disease severity in wheat using supervised image classification methods. *Ecological Informatics*, 71, p.101774.
6. **Banerjee, K.**, Dutta, S., Das, B., Roy, D., Sen, S., Mandal, B.P. and Chatterjee, A., 2025. Crop type discrimination through low cost proximal RGB imaging and multivariate analysis. *Arabian Journal of Geosciences*, 18(1), p.31.
7. **Banerjee, K.**, Dutta, S., Das, S. and Sadhukhan, R., 2025. Crop simulation models as decision tools to enhance agricultural system productivity and sustainability—a critical review. *Technology in Agronomy*, 5(1).
8. Sadhukhan, R., Kumar, D., Sepat, S., Ghosh, A., **Banerjee, K.**, Shivay, Y.S., Gawdiya, S., Harish, M.N., Bhatia, A., Kumawat, A. and Dutta, S., 2024. Precision nutrient management influences the productivity, nutrients use efficiency, N₂O fluxes and soil enzymatic activity in zero-till wheat (*Triticum aestivum* L.). *Field Crops Research*, 317, p.109526.
9. Yadav, B., Krishnan, P., Parihar, C.M. and **Banerjee, K.**, 2025. Modelling crop growth and soil hydrothermal regimes under conservation agriculture using APSIM-wheat. *Scientific Reports*, 15(1), p.36362.
<https://doi.org/10.1038/s41598-025-20211-6>
10. **Banerjee, K.**, Krishnan, P., Kumar, A. Barman. A., Roy, D., Sen, S., Yadav, B. 2025. Characterizing and screening of wheat genotypes under salinity stress condition using thermography and multivariate techniques. *Sci Rep* 15, 39220 (2025).
<https://doi.org/10.1038/s41598-025-19428-2>
11. Kumar, S., Krishnan, P., Singh, P.K., Vashisth, A., **Banerjee, K.** and Kundu, M., 2024. Development of Tomato Fruit Stage Index (TFSI) to characterise different fruit growth stages of tomato using multivariate techniques. *Journal of Food Measurement and Characterization*, 18(2), pp.980-999.
12. Mandal, K.G., **Banerjee, K.**, Purbey, S.K. and Kumar, R.A.V.I., 2024. Potential measures to enhance ecosystem services of flood-prone and wetland agricultural systems. *Journal of Agricultural Physics*, 24, pp.S108-S122.
13. Giri, R.K., Cherian, B., Mendali, B., Virk, P., Pfeifer, W., Jat, R.K., Meena, M.L., Durgude, S., **Banerjee, K.**, Hasanain, M. and Meena, V.S., 2026. Scaling biofortified wheat production for agrifood and nutritional security in eastern India: Evidence from five years of multi-location field evaluations in Bihar. *Field Crops Research*, 341, p.110393.

Book chapters:

1. **Banerjee, K.**, Pramanik, P., Maity, A., Joshi, D.C., Wani, S.H. and Krishnan, P., 2019. Methods of using nanomaterials to plant systems and their delivery to plants (Mode of entry, uptake, translocation, accumulation, biotransformation and barriers). In *Advances in Phytonanotechnology* (pp. 123-152). Academic Press.
2. **Banerjee, K.** and Das, B., 2022. Application of Remote Sensing Technology for Estimation of Soil Moisture. In *Soil Management For Sustainable Agriculture* (pp. 231-258). Apple Academic Press.
3. **Banerjee, K.**, Bal, S.K., Chakraborty, D., Malleswari, S., Banerjee, A., Sadhukhan, R. 2021. *Agricultural Research, Technology and Policy: Innovations and Advances*.

- Crop Calendars and Advances in Agriculture Insurance Products in India. In book: Agricultural Research, Technology and Policy: Innovations and Advances.
4. Sadhukhan, R., Sharma, L.D., Sen, S., Karmakar, S., **Banerjee, K.** and Baral, K., 2021. Enhancing the Productivity of Field Crops through Nano-Fertilizer. In Agricultural Development in Asia-Potential Use of Nano-Materials and Nano-Technology. IntechOpen.
 5. Saha, S., Mridha, N., Chakraborty, D., Chatterjee, D., Nanda, M.K., Dhanya, M.S., Swain, C.K., Das, S.R. and **Banerjee, K.**, 2024. Monitoring and Impact Assessment of Climate Change: Eddy Covariance Technique. In Climate Change Impacts on Soil-Plant-Atmosphere Continuum (pp. 595-630). Singapore: Springer Nature Singapore.
 6. Biswas, A., Sarkar, S., Das, S., Dutta, S., Choudhury, M.R., Giri, A., Bera, B., Bag, K., Mukherjee, B., **Banerjee, K.** and Gupta, D., 2025. Water scarcity: A global hindrance to sustainable development and agricultural production–A critical review of the impacts and adaptation strategies. Cambridge Prisms: Water, 3, p.e4.
 7. Dutta, H., Bhattacharya, S., Sawarkar, A., Pradhan, A., Raman, R.B., Panigrahi, K.K. and Dutta, S., **Banerjee, K.** 2023. High yielding mulberry production through controlled pollination for enhanced vegetative growth and early sprouting suitable for tropical agroclimatic regions. The Pharma Innovation. 2023a, 12(3), pp.4485-4492.
 8. Mandal, K.G., **Banerjee, K.**, Samal, S.K., Bharti, P.K., Purbey, S.K. (2025). Blending Traditional Knowledge of Farmers in Agriculture with Modern Scientific Technologies in the State of Jharkhand. In: Acharya, C.L., Chaudhary, R., Gurumurthy, P., Rao, A.S. (eds) Blending Indian Farmers' Traditional Knowledge in Agriculture with Modern Scientific Technologies. Springer, Singapore. https://doi.org/10.1007/978-981-96-1020-4_21
 9. Mandal, K.G., Purbey, S.K., Bharti, P.K., **Banerjee, K.**, Samal, S.K. (2025). Blending Traditional Knowledge of Farmers in Agriculture with Modern Scientific Technologies in the State of Bihar. In: Acharya, C.L., Chaudhary, R., Gurumurthy, P., Rao, A.S. (eds) Blending Indian Farmers' Traditional Knowledge in Agriculture with Modern Scientific Technologies. Springer, Singapore. https://doi.org/10.1007/978-981-96-1020-4_20
