

Curriculum Vitae
PRANAY KUMAR KADARI

University of Missouri
College of Agriculture, Food & Natural resources
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EDUCATION

MS in Plant, Insect and Microbial Sciences 2023-25

University of Missouri, Columbia, MO - CGPA-3.8/4

Thesis title: Topographic Positions Affects Corn Yields and Productivity under Varied Nitrogen Rates and Application Timings.

Thesis committee: Dr. Gurbir Singh, Dr. Kelly Nelson, Dr. Morgan Davis, and Dr. Gurpreet Kaur

Graduate Geographic Information Science Certificate 2023-25

University of Missouri, Columbia, MO

BS (Hons) in Agricultural sciences 2018-22

Professor Jayashankar Telangana State Agricultural University - CGPA: 8.8/10

PROFESSIONAL EXPERIENCE

Research Technician 2025-Present

*High throughput plant phenotyping Facility, National Center for Soybean Biotechnology,
University of Missouri, Columbia, MO, USA*

- Lead end-to-end phenotyping workflows including data acquisition, image processing, statistical analysis, and reporting for high-throughput root system architecture (RSA) studies evaluating soybean and sorghum responses to abiotic stress (drought and waterlogging) under field and controlled environment conditions.
- Developed and standardized experimental protocols and analytical pipelines to improve consistency, efficiency, and reproducibility of image acquisition, processing, and quantitative trait analysis across experiments.
- Assisting research scientists and post-doctoral fellows, and mentor undergraduate students (n=5) in experimental design, phenotyping operations, data management and analysis, equipment maintenance, and preparation of results for manuscripts and presentations.

Graduate Research Assistant 2023-25

Greenley Jr. Memorial Research Center, University of Missouri, Columbia, MO, USA

- Led experimental and treatment design and setup, comprehensive field data collection (soil and plant sampling; static chamber gas flux measurements; within-field and at the end of field water quality) and laboratory analyses (soil fertility, soil health and water quality), data management, statistical analysis, reporting and manuscript preparation.
- Integrated UAV and LiDAR products with landscape/topographic covariates to support site-specific N management and estimation of optimum N rates (AONR/EONR); generated reproducible analysis outputs (code, figures, and tables) for manuscripts and technical reports.
- Prepared technical reports, peer-reviewed manuscripts, and presentations for international conferences (CANVAS) and outreach events such as field days and workshops.

- Mentored and supported graduate students (n = 5) on ongoing research projects (hemp N-rate response, blind inlets, biological N products, soil health assays), providing guidance in field and laboratory data collection, geospatial and statistical analysis, and interpretation.

Research Intern

2022-23

International Crops Research Institute for Semi-Arid Tropics (ICRISAT), India

GIS & Remote Sensing Lab

- Conducted watershed delineation and hydrological characterization, including stream order, catchment, and command area analyses, to identify landscape-suitable zones for millet cultivation.
- Assisted in experimental set up, field data collection and lab analysis for evaluating pigeon pea-maize intercropping systems under varying tillage and residue management practices.

RS Paroda Gene Bank

- Assisted in data collection for phenotypic characterization, primary and trait specific evaluation in legumes (Pigeon pea, chickpea and ground nut) and oilseeds (sesame, sunflower) global diversity accessions.
- Training interns (n=3), students in data collection, record keeping and reporting.

Research Assistant, Department of Genetics & Plant breeding

2022-22

Agricultural Research Station (ARS), PJTSAU, India

- Assisted in hybridization and development of novel green manure genotypes (sun hemp and sesbania), collected and analyzed biometrical and soil data, and contributed to establishing best-practice protocols for foundation seed production.

Research & Extension Intern

2015-22

Professor Jayashankar Telangana State Agricultural University

- Assisted in soil sample collection, fertility and health analyses in Long Term Fertilizer Experiments on Rice.
- Contributed to the hybridization and evaluation of high yielding sesame varieties for yield, superior agronomic traits, biotic (heat and drought) and disease resistance (*Cercospora* and *Phyllody*).
- Conducted technology transfer and extension activities to bridge agronomic, technological, and extension gaps in farmers' fields via PRA, expert meetings, awareness campaigns, field visits, T&V programs, village adoption, and agricultural exhibitions.

TEACHING EXPERIENCE

Teaching Assistant

Department of Agricultural Entomology, Agricultural College, India

2022-23

- Conducted field and laboratory practical classes for ENTO 332: *Management of Beneficial Insects* (Undergraduate 2019-2020 batch).

PROFESSIONAL SKILLS

Data & Statistics: R Studio, SAS, Agriculture Research Manager (ARM), Sigma plot, Origin Pro, and high-performance computing.

Geospatial/Remote Sensing: GEE, ArcGIS Pro, QGIS, ERDAS, Agisoft, FieldImageR.

Root Phenotyping: Root Painter, Rhizo Vision, RhizoWin

Field & Lab Instrumentation: Gasmet Terra 500, Gallery Enzyme Master, Ion Chromatograph, L500 bench top meter, SPAD, Picketa, Apparent EC (Geonics), LI-600, Field scout TDR, Picketa Scanner, GPS, Eijelkamp apparatus, GENESYS™ 30 Visible Spectrophotometer, Orbital shaker.

PUBLICATIONS

Peer reviewed articles

1. **Kadari, P. K.**, Singh, G., Nelson, K. A., Kaur, G., & Rocha, A. (2025). Nitrapyrin application at different topographic positions affects corn productivity and economic returns. *Agronomy Journal*, 117(6), e70239. <https://doi.org/10.1002/agj2.70239>
2. Aslam, M. M., **Kadari, P. K.**, Singh, G., Nelson, K. A., Kaur, G., Single and Mixed Species Cover-Crops Affects Cotton Yield, Quality, and Economic Outcomes. (Accepted by Agrosystems, Geosciences & Environment).
3. **Kadari, P. K.**, Singh, G., Nelson, K. A., Davis, M.P., Kaur, G., Nitrogen Dynamics in Soil-Plant-Water and Gaseous Pathways as Affected by Topographic Positions and Application Timing (Under Journal review).
4. **Kadari, P. K.**, Singh, G., Nelson, K. A., Davis, M.P., Kaur, G., Nitrification Inhibitors Affect Nitrogen Requirement, Corn Grain Yields and Quality, and use efficiencies Across Topographic Positions (In revision).
5. **Kadari, P. K.**, Singh, G., Kaur, G., & Nelson, K. A., Predictive Modeling of Soybean Yield Loss Due to Early-Season Waterlogging Using UAV-Based Vegetation Indices and Machine Learning (In preparation).

Extension articles & Project reports

1. **Kadari, P. K.**, Singh, G., Nelson, K. A., Davis, M.P., Kaur, G., Landscape Positions and Nitrification Inhibitors Affect Corn Productivity on Claypan Soils (MoFCB annual project report-2025)
2. **Kadari, P. K.**, Singh, G., Nelson, K. A., Davis, M.P., Kaur, G., Landscape Positions and Nitrification Inhibitors Effects on Nitrogen Requirement on Claypan Soils, University of Missouri Greenley Memorial Center 47th Annual field day, 2024 (*Publication No. SR606*). Available online at: <https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pub/pdf/specialb/sr0605.pdf>
3. **Kadari, P. K.**, Singh, G., Nelson, K. A., Davis, M.P., Kaur, G., Landscape Positions and Nitrogen Timing Affects Corn Yields and Grain Nitrogen Uptake and Quality, University of Missouri Greenley Memorial Center 47th Annual field day, 2024 (*Publication No. SR606*). Available online at: <https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pub/pdf/specialb/sr0605.pdf>

Proceedings & Abstracts

1. **Kadari, P. K.**, Singh, G., Nelson, K. A., Davis, M. P., & Kaur, G. (2024) Landscape Positions and Nitrification Inhibitors Affect Corn Productivity and Grain Quality on Claypan Soils [Proceedings]. North Central Extension-Industry Soil Fertility Conference, Des Moines, IA, 2014. Available online: https://northcentralfertility.com/Conference_History/54_NFSFC

POSTER PRESENTATIONS & ORAL TALKS

Conference and Symposium Presentations

1. **Kadari, P. K.**, Singh, G., Nelson, K. A., Davis, M. P., & Kaur, G. (2024) Landscape Positions and Nitrogen Application Timing Effects on Leaching Loss from Claypan Terraces [Oral talk]. ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX. <https://scisoc.confex.com/scisoc/2024am/meetingapp.cgi/Paper/159872>

2. **Kadari, P. K.,** Singh, G., Nelson, K. A., Davis, M. P., & Kaur, G. (2024) Landscape Positions and Nitrification Inhibitors Affect Corn Productivity and Grain Quality on Claypan Soils [Rapid talk & Poster]. North Central Extension-Industry Soil Fertility Conference, Des Moines, IA, 2014. Available online: https://northcentralfertility.com/Conference_History/54_NFSFC.
3. **Kadari, P. K.,** Singh, G., Nelson, K. A., Davis, M. P., & Kaur, G. (2024) Landscape Positions and Nitrification Inhibitors Affect Corn Productivity and Grain Quality on Claypan Soils [Poster]– UCOWR, St. Louis. MO, 2024.
4. **Kadari, P. K.,** Singh, G., Nelson, K. A., & Kaur, G. (2024) Can NDVI and ReNDVI₇₅₀ be a Reliable Predictor of Grain Yield for Corn Grown on Landscape Positions with Split Nitrogen Application Timings? [Poster]– University of Missouri-Digital Ag symposium-2024. Available at: <https://darec.missouri.edu/darec-symposium-2024/>.
5. **Kadari, P. K.,** Singh, G., Nelson, K. A., & Kaur, G. (2024)., Influence of Topographic Positions on denitrification losses from a claypan terrace under corn and soybean rotation. [Poster]-University of Missouri- Soybean symposium-2024.
6. **Kadari, P. K.,** Singh, G., Nelson, K. A., & Kaur, G. (2024)., Topographic Positions-based N Management with Nitrpyrin Enhances Corn Productivity and Profitability in Missouri (University of Missouri-Digital Ag symposium-2025. Available at: <https://darec.missouri.edu/darec-symposium-2025/>.

Extension & Outreach talks

1. Updating Nitrogen Rate Recommendations for Missouri (Field Day-2024)
2. Augmented Reality for understanding topography (HS Field Day, 2024, Bradford Farm)
3. Understanding the influence of Topography on N management on claypan soils (SFWG-2025)

WORKSHOPS

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| 1. Utility drones for Agricultural Operations at Greenley Research Center | 09/2024 |
| 2. DST Funded ICRISAT Workshop on Regenerative Agriculture, India | 09/2022 |
| 3. Workshop on climate change, Agri clinics and Agri business centers conducted by National Bank of Agriculture & Rural Development at RARS, Jagtial. | 12/2021 |

AWARDS & HONORS

1. 54th NCSFC Outstanding Graduate Student Award, Des Moines, IA, 2024
2. 1st Place - ASA Nutrients and Environmental Quality Community Student Competition. American Society of Agronomy (ASA), 2024 Annual Meeting, San Antonio, TX.
3. 3rd Place - Essay and Elocution Competitions. Inter-Collegiate Sports, Games, Cultural, and Literary Competitions for Undergraduate, Hyderabad-2022

PROFESSIONAL MEMBERSHIPS

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| 1. American Society of Agronomy | 2024-present |
| 2. Soil Science Society of America | 2024-present |
| 3. Crop Science Society of America | 2024-present |
| 4. The Universities Council on Water Resources | 2024-present |

REFERENCES

Dr. Gurbir Singh (MSc Supervisor)
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Division of Plant Science and Technology
University of Missouri, Columbia, MO
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Prof. Henry T. Nguyen
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