Poonam Karki

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EDUCATION

Master of Science in Sustainable Agriculture 2022-2024
GPA: 4.00 *Lincoln University of Missouri, USA*

Bachelor of Science (Honors) in Agriculture 2016-2020
GPA: 3.82. Honor Roll Student. *Purbanchal University, Nepal*

PROFESSIONAL AND RESEARCH EXPERIENCE

Soil Health Research Specialist July 2024- Current
Department of Agriculture and Environmental Sciences, Lincoln University of Missouri.

PROJECT 1: Evaluating Climate Resilient Alternative Winter-Feeding Strategy for Improved Livestock Productivity by Grazing in a Solar Corridor Cropping System.

PROJECT 2: Integrating Living Perennial Cover Crops into Organic Vegetable Production System: Impacts on Soil Health and Cover Crop Biomass Production.

- Conducted detailed soil health analyses targeting key indicators for **C & N cycling and microbial ecology** with high standards of precision in data collection and interpretation.
- Apply **statistical modeling** and data analysis in **R** and **SAS** to evaluate soil health metrics, generate insights, and support research objectives.
- Led the soil sampling effort for field trials, ensuring a systematic and accurate collection of soil samples across diverse locations and conditions.
- Conducted quality control in **laboratory analyses** to maximize data reliability by allowing results to effectively support research findings.
- Worked with researchers and extension specialists to **analyze** and **interpret data** for soil health while fostering a collaborative atmosphere where research insights were translated to actionable products.
- Developed and created presentations and outreach materials that related the results of the research to farmers, thus providing actionable insights in promoting sustainable practices in soil management.

Graduate Research Assistant August 2022- June 2024
Department of Agriculture and Environmental Sciences, Lincoln University of Missouri.

PROJECT 1: Integrating Living Perennial Cover Crops into Organic Vegetable Production System: Impacts on Soil Health and Cover Crop Biomass Production.

PROJECT 2: Soil Health Characteristics Across a Gradient of Organic Land-use Intensity in Mid-Missouri.

- Planned, organized, and assisted in executing multiple field trial activities, including assisting with planting, harvest, cover crop biomass collection, and soil sampling.
- Laboratory procedures on soil health analysis using methods and techniques of advanced levels to analyze soil organic carbon, microbial activity, and nutrient cycling.

- Ensuring high standards of data quality and accuracy across all stages of trials, contributing to reliable and meaningful research outcomes.
- Applied methods of data analysis to interpret results, providing insights into soil health and implications for sustainable future.
- Presented research findings to farmers around Mid-Missouri area through conferences, workshops, and extension projects. Developed accessible presentations and outreach materials that describe complex research in practical, actionable terms to help farmers incorporate soil health practices into their operations.

Research Technician June 2021- July 2022
Kisan Care Pvt. Ltd.

- Supported the dissemination of ecological farming techniques such as cover cropping, legume intercropping, mixed cropping, and botanical pesticides to commercial vegetable growers.
- Conducted field-level training for over 500 farmers in the Kathmandu valley, equipping them with practical skills in sustainable agriculture.
- Collaborated with senior staff and members of Kisan Care team to draft various reports, correspondence, and documentation, summarizing periodic findings and the main insights into the project.

Research Intern August 2020- January 2021
Floriculture Department Center

- Investigated the impact of Maleic Hydrazide and Gibberellic Acid on the growth and productivity of African marigold in Godawari, Nepal.
- Communicated findings and implications for marigold cultivation, offering valuable guidance for farmers interested in enhancing productivity through targeted growth regulator applications.

PUBLICATIONS

Karki P., Atreya P.N., Shrestha S (2021). Effect of Maleic Hydrazide and Gibberellic Acid on growth, and yield of African marigold (*Tagetes erecta* L.) CV. Calcuttia Orange. *Fundam Appl Agric 6(3): 272–278, 2021* doi: 10.5455/faa.103177

Karki P., Hurisso T., Reinbott T. (2024). Soil health responses to annual versus perennial cover crops in alleyways during vegetable-based organic transition (Under review at Agroecosystems, Geosciences and Environment Journal, *ASA, CSSA*)

Karki P., Hurisso T., Reinbott T. (2024). Perennial and annual cover crop alleyways alter soil C and N cycling in adjacent vegetable production. (Under review)

PRESENTATIONS

Hurisso T.,**Karki P**, Reinbott T. Soil Health Comparison of Living Perennial versus Annual Cover Crops during Transition to Certified Organic Vegetable Production. Poster presented MarbleSeed Organic Farming Conference, 20th February- 22nd February 2024, La Crosse, WI, USA.

Al-Awwal N., **Karki P**., Hurisso T. Making Sense of the Soil Heath Testing. Minority and Limited Resources Farmers and Producers Conference. 12th September -13th September 2024, Sikeston, MO, USA.

Karki P., Hurisso T., Reinbott T. Integrating Living Perennial Cover Crops into Organic Vegetable Systems: Impact on Soil Health and Cover Crop Biomass Production. Poster presented at 1890 ARD Research Symposium. 7th April – 9th April 2024, Nashville, TN, USA.

Karki P., Hurisso T., Al-Awwal N., Reinbott T. Gerling T. Soil Health and Vegetable Yield Responses to Perennial versus Annual Cover Crops in Traffic Pathways. Poster presented at 2024 Great Plains Growers Conference: 11th January 2024- 13th January 2024, St Joseph, MO, USA.

Karki P., Hurisso T., Al-Awwal N., Reinbott T. Evaluation of Labile C and N Indicators of Soil Health after 2- years of Living Perennial and Annual Cover crops during organic vegetable transition. Poster presented at: 2023 ASA, CSSA, SSSA International Annual Meeting. 29th October- 1st November 2023, St. Louis, MO USA

Al-Awwal N., Adeyeye A., **Karki P**., Tesfaye S., Hurisso T. Soil Health Characteristics across a Gradient of Organic Land-Use Intensity in Mid-Missouri. Poster presented at: 2023 ASA, CSSA, SSSA International Annual Meeting. 29th October- 1st November 2023, St. Louis, MO USA

Al-Awwal N., **Karki P**., Hurisso T. Making Sense of the Soil Heath Testing. Minority and Limited Resources Farmers and Producers Conference. 28th September -29th September 2024, Sikeston, MO, USA.

Karki P., Atreya P.N., Shrestha S. Effect of Maleic Hydrazide and Gibberellic Acid on growth, and yield of African marigold (*Tagetes erecta* L.) CV. Calcuttia Orange. Poster presented at: 12th National Horticultural Seminar-2021. 4th March-5th March, 2021, Kirtipur Kathmandu.

CORE COMPETENCIES & SKILLS

- Soil Health Analysis: 16s/ITS amplicon sequencing, Soil Enzymes (Dehydrogenase, Beta-Glucosaminidase, Beta-Glucosidase, Arylsulfatase, Acid Phosphatase), Mineralizable Carbon, Permanganate Oxidizable Carbon, ACE Soil Protein, Phospholipid Fatty Acid, Soil Organic Carbon, Potentially Mineralizable Nitrogen, Total Nitrogen
- Programming knowledge: R, R-studio, SAS, Genstat, Minitab
- Microsoft office package: Word, Excel, PowerPoint
- GIS software: Arc-GIS

KEY ACCOMPLISHMENT

- First position in "Evaluation of Labile C and N Indicators of Soil Health after 2-years of Living Perennial and Annual Cover crops during organic vegetable transition" Poster Competition organized by Organic Management Systems Community, ASA-CSSA-SSSA.
- Third position in "Integrating Living Perennial Cover Crops into Organic Vegetable Systems: Impact on Soil Health and Cover Crop Biomass Production" Poster Competition organized by 1890 ARD Research Symposium.

CERTIFICATION

- Biology meets Programming: Bioinformatics for Beginners authorized by University of California, San Diego and offered through Coursera 2025.
- Fundamentals of GIS authorized by University of California, Davis and offered through Coursera 2021.
- Sustainable Agricultural Land Management authorized by University of Florida and offered through Coursera 2020.

REFEREES

- Tunsisa Hurisso, PhD
  Assistant Professor, Soil and Watershed Management. Lincoln University of Missouri.
  HurissoT@lincolnu.edu

- Touria Eaton, PhD
  Assistant Professor, Horticulture. Lincoln University of Missouri.
  EatonT@lincolnu.edu

- Sujan Acharya, PhD
  Assistant Professor, Food Science, Lincoln University of Missouri
  Acharyas@lincolnu.edu