Dr. Kiran Karthik Raj

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Summary

My research interest is climate change, soil fertility and plant nutrition. I am also interested in geospatial and digital identification of problems in crops. Ph.D. research work was on " Mobilization of Soil Iron to Minimize Iron Deficiency Chlorosis of Soybean (*Glycine Max* (L.) Merr.) Under Ambient and Elevated CO_2 and Temperature Conditions" at the Division of Soil Science and Agricultural Chemistry, Indian Agricultural Research Institute, New Delhi. Post graduate research work was on "Effect of Pollutants Emitted from Bellary Thermal Power Station on Soil Health and Productivity of Maize (*Zea mays* L.)" from Department of Soil Science and Agricultural Chemistry, University of Agricultural Science, Raichur. I am working on the broad area of "Digital innovations and smart solutions for agriculture" with special emphasis on IoT enabled multivariate solutions for agricultural crops.

Research Highlights

- A novel application of ^{14}C labelling was established as a reliable technique to screen soybean genotypes (Glycine max (L.) Merr.) for iron deficiency tolerance. [First report in the world: developed protocol by adopting radiocarbon labelling as a reliable technique for screening iron stress tolerance]
- Established scientific basis for the use of ^{14}C content in the root exudates as a novel application of radiocarbon labelling for screening iron deficiency tolerance of soybean (Glycine max (L.) Merr.) genotypes. [First report in the world: scientific basis for the use of ^{14}C labelling for screening iron deficiency tolerant genotypes of soybean]
- Developed D-GIGIPROBE App for Gesospatial and Digital Identification of Problems in Crops.

Experience

Joined Kerala Agricultural University as Assistant Professor (Soil Science and Agricultural Chemistry) in 2021

Education

- Graduated in Agricultural Science from Kerala Agricultural University (2012)
- Post Graduation in Soil Science and Agricultural Chemistry from UAS, Raichur (2014)
- Ph.D in Soil Science and Agricultural Chemistry from Indian Agricultural Research Institute, New Delhi (2019)

Area of Specialization

Climate change, soil fertility and plant nutrition, Digital innovations and smart solutions for agriculture, Geospatial and Digital Identification of Problems in crop.

Awards & Recognitions

- First Prize in Oral Presentation, KAU - Corteva International Plant Science Symposium - 2024
- Best Research Paper Award for Oral Presentation, National Seminar on Soil Water Symbioses - 2023
- IARI Gold Medal (University Merit Medal for Ph.D.), ICAR-IARI, New Delhi-2021
- Gold Medal (Dr. S. P. Raychoudhuri Memorial Gold Medal), Delhi Chapter of Indian Society of Soil Science, New Delhi- 2021
- Best Research Scholar Award,Agro Environmental Development Society (AEDS) - 2020
- Best Research Paper Award, Indian Poultry Science Association Conference (IPSACON-2018)
- Young Scientist Award for the Best Research Paper Presented, Centre for Environment and Development (CED), Thiruvananthapuram - 2017
- International Plant Nutrition Institute (IPNI) Scholar Award-2016, Board of Directors of IPNI, U.S.A.
- Second Rank (All India) in ARS Examination (Soil Science), Agricultural Scientist Recruitment Board, ICAR, New Delhi - 2016
- Junior Research Fellowship: University Grants Commission (UGC), Govt. of India, 2015-16
- First Rank in M. Sc. (Agriculture) with specialization in Soil Science and Agricultural Chemistry. University of Agricultural Sciences (UAS), Raichur, Karnataka-2014
- University Gold Medal, University of Agricultural Sciences (UAS), Raichur, Karnataka -2013
- Project Fellowship Bellary Thermal Power Station (BTPS), Karnataka Thermal Power Corporation Limited, Karnataka - 2013
- University Merit Scholarship, University of Agricultural Sciences (UAS), Raichur, Karnataka, 2012-13

Research Projects

Ongoing

- Developing Diagnostic Standards for Monitoring Nutrient Imbalance in Coconut of Kerala
- Observational Trial on Strengthening of KAU Soil Test Service: Web-enabled software package for farmers

Completed

- Study of carbon footprints in major farming systems of A&N Islands for climate change adaptation [PI]
- Organic Farming Studies for Sustaining Productivity of Island Cropping Systems [PI]
- High-value vegetable cultivation and vermicompost production in rainout shelters for doubling farmer's income [Co-PI]
- Management of moisture stress in vegetable cropping systems [Co-PI]
- Evaluation of rice genotypes for high phosphorus efficiency in Andaman and Nicobar Island conditions [Co-PI]
- Study of hydrological response for soil and water conservation in Island ecosystem [Co-PI]

Publications

Journal Articles

- Raj, K. K., Pandey, R. N., Singh, B., Meena, M. C., Talukdar, A. and D. Chakraborty (2021). Response of Soybean (*Glycine max* (L.) Merr.) Genotypes to Iron Limiting Stress in Calcareous Vertisol Under Ambient and Elevated CO_2 and Temperature Conditions Journal of Environmental Biology, 42: 295-301
- Raj, K. K., Pandey, R. N., Singh, B., Talukdar, A., Meena, M. C. and Chobhe K. A. (2020). Evidences for the Use of ^{14}C Content in the Root Exudates as a Novel Application of Radiocarbon Labelling for Screening Iron Deficiency Tolerance of Soybean (*Glycine max* (L.) Merr.) Genotypes. Journal of Radioanalytical and Nuclear Chemistry, 326 (1): 487-496.
- Raj, K. K., Pandey, R. N., Singh, B. and Talukdar, A. (2019). ^{14}C labelling as a reliable technique to screen soybean enotypes (*Glycine max (*L.) Merr.) for iron deficiency tolerance.Journal of Radioanalytical and Nuclear Chemistry, 322 (2): 655-662 .

- Raj, K. K., Pandey, R. N., Singh, B., Meena, M. C. and Talukdar, A. (2019). Mobilization of iron from calcareous vertisol to minimize iron deficiency chlorosis of soybean (Glycine max (L.) Merr.). Journal of Indian Society of Soil Science, 67 (3) 351-359
- Srisha Adamala, Velmurugan, A., Swarnam, T.P., Subramani, T., and Kiran, K. R. (2018). Soil and water conservation measures for Andaman and Nicobar Islands. Journal of Andaman Science Association, 23(2): 141-147.
- Kiran, K. R., Ravi, M.V., Dhanya, B., Janagoudar, B. S., Umesh, M. R. and Narayanarao, K. (2016). Do emissions from thermal power station affect crop productivity? : A study from the vicinity of Bellary thermal power station Journal of Environmental Biology, 37(5): 949-954.

Student Guidance (**Major Advisor/ Advisory Committee member**)

Completed: 2
Ongoing : 3