

Profile

Alka Rani

Designation: Scientist
Division of Soil Physics
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Research specialization: Soil Physics, Applications of remote sensing and GIS in soil science, Crop simulation modelling

Professional Experience: Ms. Alka Rani is a soil scientist in the division of Soil Physics at Indian Institute of Soil Science, Bhopal. She joined Agricultural Research Services in the year 2019. She has completed her B.Sc. Agri. (Hons.) from Punjab Agricultural University, Ludhiana in 2014 and was awarded with Gold Medal and Academic Roll of Honour for securing first position in her batch. She was also awarded with Dr. Sukhdyal Nijhawan Medal for securing first position in B.Sc. Agri. (Hons.) with specialization in Soil Science. After that, she completed her M. Sc. from the division of Agricultural Physics, Indian Agricultural Research Institute, New Delhi and is currently enrolled in the PhD programme in the same division. During her PhD programme, she visited Daugherty Water for Food Global Institute & National Drought Mitigation Center, Lincoln, U.S.A. under INDO-US 21st Century Knowledge Initiative for development of drought monitoring system for India using remote sensing datasets. She is currently working in the field of soil physics, remote sensing and GIS application in soil science and crop simulation modelling.

Awards and Honours:

- **Gold Medal** for securing first position in Bachelor of Science in Agriculture (Hons.) programme during the year 2014 from the College of Agriculture, Punjab Agricultural University.
- **Academic Roll of Honour** for obtaining highest overall credit point average in Bachelor of Science in Agriculture (Hons.) programme during the year 2014 from the College of Agriculture, Punjab Agricultural University.

- **Dr. Sukhdyal Nijhawan Medal** for securing first position in Bachelor of Science in Agriculture (Hons.) programme with specialization in Soil Science during the year 2014 from the College of Agriculture, Punjab Agricultural University.
- **Merit Certificate** for obtaining overall credit point average of 8.88 out of 10.00 in Bachelor of Science in Agriculture (Hons.) programme during the year 2014 from the College of Agriculture, Punjab Agricultural University.
- **Best position in oral presentation** of the paper entitled “Simulation of Nitrogen uptake, Nitrogen Utilization Efficiency and yield of wheat under tillage, residue and nitrogen management” in the International Conference on “Sustainable Natural Resource Management: From Science to Practices” organized by “Varanasi chapter of Indian Society of Agricultural Engineers” at Banaras Hindu University, Varanasi on January 12-13, 2017.
- **Joint CSIR-UGC Junior Research Fellowship** for pursuing PhD in 2016.
- **ICAR Junior Research Fellowship** for pursuing M.Sc. in 2014.

Top publications:

Research papers

- Rani, A., Bandyopadhyay, K.K. and Krishnan, P. (2017). Simulation of Nitrogen uptake, Nitrogen Utilization Efficiency and yield of wheat under tillage, residue and nitrogen management using DSSAT-CERES-Wheat model, *Indian Journal of Ecology*, **44(2)**: 167-178.
- Rani, A., Bandyopadhyay, K.K., Krishnan, P., Sarangi, A. and Datta, S.P. (2017). Effect of tillage, residue and nitrogen management on soil physical properties, soil temperature dynamics and yield of wheat in an Inceptisol. *Journal of Agricultural Physics*, **17(1)**: 31-44.
- Rani, A., Bandyopadhyay, K.K., Krishnan, P., Sarangi, A. and Datta, S.P. (2017). Effect of tillage, residue and nitrogen management on soil mineral nitrogen dynamics and nitrogen use efficiency of wheat crop in an Inceptisol. *Journal of Agricultural Physics*, **17(1)**: 16-30.
- Rani, A., Bandyopadhyay, K.K., Krishnan, P., Sarangi, A. and Datta, S.P. (2019). Effect of Tillage, Residue and Nitrogen Management on Soil Water Dynamics and Water Productivity of Wheat in an Inceptisol. *Journal of the Indian Society of Soil Science*, **67(1)**: 44-54.

Book chapters

Anandkumar Naorem, **Alka Rani**, Dibakar Roy, Sumanta Kundu, N. Srinivas Rao, P.D. Sreekanth, Alok Kumar, K.M. Manjaiah and Ch. Srinivasa Rao (2019). Frontier Soil Technologies for Sustainable Development Goals (SDGs) in India. In: Challenges and Emerging Opportunities in Indian Agriculture. Srinivasa Rao, Ch., Senthil, V. and Meena, P.C. (eds.). ICAR – National Academy of Agricultural Research Management, Hyderabad, pp: 113-152.

Book

Rani A, Kumar N, Singh SK, Sinha NK, Jena RK and Patra H (2019). Remote Sensing Data Analysis in R. New India Publishing Agency, New Delhi (ISBN- 978 93 87973)