Profile

Dr Nishant K Sinha

Designation: Scientist
Division of Soil Physics

☎ [+91-755-2730970 (108),
Fax: +91-755-2733310]
✉ [nishant.sinha76211@gmail.com;
nishant.sinha@icar.gov.in]

Research specialization: Agricultural Physics

- Crop growth simulation modeling to improve the management options for different scenarios.
- Soil spectroscopy: Development of chemometric model using Visible-NIR- MIR through machine learning approaches.
- GIS and remote sensing in agriculture
- Soil processes: Soil Carbon and Nitrogen / aggregate dynamics
- Crop root dynamics : Studying root system architecture under different management practices
- Soil health management.

Professional Experience:

I have more than 9 years of experience in research and training in field of crop modelling, soil spectroscopy, remote sensing, crop root dynamics and soil health management. I take modelling based approach to understand the impact of climate change and variability on agriculture and soil processes including carbon and nitrogen cycles and their effects on crop productivity vis a vis to develop the crop adaptive strategies to enhance the food security. I used machine-learning approaches to develop chemometric models for rapid assessment of soil properties in VNIR-MIR (visible-near infrared- mid-infrared). I am also working towards understanding of dynamics of soil properties and root system architecture of agricultural crops under different management practices. I have published 50-research paper in peer-reviewed journal, 6 edited books, 6-research bulletin and 25 book chapters. I have good experience in guiding students (4 M.SC. and 2 Ph.D) as well as several research projects.

Awards and Honours:

- Best thesis presentation award-2019 – Student- Ms. Sonam Sharma, Title of thesis: Pedotransfer function for predicting soil hydraulic characteristics of vertisol of central India: Sonam Sharma (student), Dr. S. K. Trivedi (Major adviser); Dr. Nishant K Sinha (Co-adviser), conferred by Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior.
- Young Scientist Award-2015 by Bioved Research Institute of Agriculture and Technology, India.

- Young Achiever Award-2014 by the Society for Advancement of Human and Nature, India.
- Best Poster Award for "Characterizing rooting behavior of chick pea under different tillage system" under the theme of Global Agronomy - Agronomy beyond Borders in 3rd International Agronomy Congress "Agriculture Diversification, Climate Change management and Livelihoods" held on 27-29 November, 2012 at IARI, New Delhi.
- ICAR National Eligibility Test 2009.
- Council of Scientific and Industrial Research (CSIR) Fellowship, 2008-2010.
- Indian Agricultural Research Institute (IARI) Fellowship, 2007-2008.
- CSIR National Eligibility Test, 2006, 2007, 2008.
- Indian Council of Agricultural Research (ICAR) Junior research Fellowship, 2005-2007.

.

Top Ten publications:

1. Shukla, A.K., **Sinha, N.K**., Tiwari, P.K., Prakash, C., Behera, S.K., Surendra Babu, P., Patnaik, M.C., Somasundaram, J., Singh, P., Dwivedi, B.S. and Datta, S.P., 2018. Evaluation of spatial distribution and regional zone delineation for micronutrients in a semiarid Deccan Plateau Region of India. ***Land Degradation & Development*****,** *29*(8), pp.2449-2459.
2. Shukla, A.K., **Sinha, N.K.**, Tiwari, P.K., Prakash, C., Behera, S.K., Lenka, N.K., Singh, V.K., Dwivedi, B.S., Majumdar, K., Kumar, A. and Srivastava, P.C., 2017. Spatial distribution and management zones for sulphur and micronutrients in Shiwalik Himalayan Region of India. ***Land Degradation & Development***, *28*(3), pp.959-969.
3. Somasundaram, J., Lal, R., **Sinha, N.K**., Dalal, R., Chitralekha, A., Chaudhary, R.S. and Patra, A.K., 2018. Cracks and Potholes in Vertisols: Characteristics, Occurrence, and Management. In ***Advances in Agronomy*** (Vol. 149, pp. 93-159). Academic Press.
4. **Sinha, N.K**., Chopra, U.K., Singh, A.K., Mohanty, M., Somasundaram, J. and Chaudhary, R.S., 2014. Soil physical quality as affected by management practices under maize–wheat system. ***National Academy Science Letters***, *37*(1), pp.13-18.
5. **Sinha, N.K**., Chopra, U.K., Singh, A.K., Kumar, N., Mohanty, M. and Somasundaram, J., 2019. Soil physical quality as quantified by S index under different management system in rice-wheat system. ***Journal of Soil and Water Conservation***, *18*(1), pp.27-34.
6. **Sinha, N.K**., Chopra, U.K. and Singh, A.K., 2014. Cropping system effects on soil quality for three agro-ecosystems in India. ***Experimental agriculture***, *50*(3), pp.321-342.
7. Mohanty, M., **Sinha, N.K**., Painuli, D.K., Bandyopadhyay, K.K., Hati, K.M., Reddy, K.S. and Chaudhary, R.S., 2015. Modelling soil water contents at field capacity and permanent wilting point using artificial neural network for Indian soils. ***National Academy Science Letters***, *38*(5), pp.373-377.
8. **Sinha, N.K.**, Mohanty, M., Somasundaram, J., Hati, K.M., Chaudhary, R.S. and Patra, A.K., 2017. Root Phenotyping of Two Soybean (Glycine max L.) Cultivars in a Vertisol of Central India. ***National Academy Science Letters***, *40*(5), pp.309-313.
9. Mohanty, M., **Sinha, N.K**., Patidar, R.K., Somasundaram, J., Chaudhary, R.S., Hati, K.M., Reddy, K.S., Prabhakar, M. and RAO, S., 2017. Assessment of maize (Zea mays L.) productivity and yield gap analysis using simulation modelling in subtropical climate of central India. ***Journal of Agrometeorology,*** 19 (4): 342-345.
10. Mohanty, M., **Sinha, N.K**., McDermid, S.P., Chaudhary, R.S., Reddy, K.S., Hati, K.M., Somasundaram, J., Lenka, S., Prabhakar, M., Rao, C.S. and Patra, A.K., 2017. Climate change impacts vis-a-vis productivity of soybean in vertisol of Madhya Pradesh. J**ournal of Agrometeorology**, 19(1):10-16.