

Profile

Dr. Kuntal Mouli Hati



Designation: Principal Scientist
Division of Soil Physics

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Research specialization: Soil Physics – Soil and Water Conservation

- Rainwater Harvesting and Recycling
- Irrigation Water Management
- Soil Health Management
- Conservation Agriculture and Carbon Sequestration
- Soil Spectroscopy, Hyper-Spectral Remote Sensing

Professional Experience:

I have been engaged in basic and strategic research for more than two decades in the capacity of scientist, senior scientist and principal scientist at ICAR-IISS, Bhopal. I have developed a school of thought and niche of understanding in the field of soil and water management in rainfed agriculture, more specifically in harvested rain water management, conservation agricultural practices, integrated nutrient management and soil health. Also involved in developing technologies for safe recycling of distillery effluents, developing methodologies for soil quality management. Developed vegetative index for prediction of nitrogen stress in wheat and maize using hyper-spectral remote sensing technique. Presently, engaged in developing and fine-tuning conservation agricultural practices for major cropping systems in Vertisols and evaluating the long-term effect of conservation agriculture on carbon sequestration, green house gas emission and soil health. Studying the potential of mid infrared spectroscopy based prediction models for simultaneous estimation of important soil physical and chemical properties to assess soil health.

Awards and Honours:

1. Golden Jubilee Commemoration Young Scientist Award of Indian Society of Soil Science.
2. Associate Fellowship of National Academy of Agricultural Sciences
3. ISSS- Dr. J.S.P. Yadav Memorial Award for Excellence in Soil Science of Indian Society of Soil Science
4. Doreen Mashler Award 2006 of ICRISAT (CGIAR) as a Team member of the IISS-ICRISAT Collaborative Project on Watershed Management
5. Endeavour Research Fellowship 2018 for post-doctoral research by Government of Australia

Top Ten publications:

1. Hati, K.M., Biswas, A.K., Bandyopadhyay, K.K. and Misra, A.K. 2004. Effect of post-methanation effluent on soil physical properties under soybean-wheat system in a Vertisol. *Journal of Plant Nutrition and Soil Science* 167: 584-590.
2. Hati, K.M., Mandal, K.G., Misra, A.K. Ghosh, P.K., and Bandyopadhyay, K.K. 2006. Effect of inorganic fertilizer and farmyard manure on soil physical properties, root distribution, water-use efficiency and seed yield of soybean in Vertisols of central India. *Bioresource Technology* 97(16): 2182-2188.
3. Hati, K.M., Biswas, A.K., Bandyopadhyay, K.K. and Misra, A.K. 2007. Soil properties and crop yields on a vertisol in India with application of distillery effluent. *Soil and Tillage Research* 92(1-2): 60-68.
4. Hati, K.M., Swarup, A., Singh, D., Misra A.K. and Ghosh, P.K. 2006. Long-term continuous cropping, fertilization and manuring effects on soil physical properties and organic carbon content of a sandy loam soil. *Australian Journal of Soil Research* 44(5): 487-495.
5. Hati, K.M., Swarup, A., Dwivedi A.K., Misra A.K. and Bandyopadhyay, K.K. (2007). Changes in soil physical properties and organic carbon status at the topsoil horizon of a vertisol of central India after 28 years of continuous cropping, fertilization and manuring. *Agriculture, Ecosystems and Environment* 119(2): 127-134.
6. Hati, K.M., Swarup, A., Mishra, B., M.C. Manna, Wanjari, R.H., Mandal, K.G. and Misra A.K. (2008). Impact of long-term application of fertilizer, manure and lime under intensive cropping on physical properties and organic carbon content of an Alfisol. *Geoderma* 148 (2): 173-179.
7. Hati, K.M., Mandal, K.G. and Misra, A.K., Ghosh, P.K. and Acharya, C.L. 2001. Effect of irrigation regimes and nutrient management on soil water dynamics, moisture extraction pattern, evapotranspiration and yield of wheat (*Triticum aestivum*) in Vertisol. *Indian Journal of Agricultural Sciences*. 71(9): 505-509.
8. Hati, K.M., Chaudhary, R.S., Mandal, K.G., Misra, A.K., Singh, R.K., Wani, S.P., Singh, P., and Pathak, P. (2013) Effect of land management and cropping systems on runoff, soil loss, soil water dynamics and crop yield in a Vertisol of central India. *Journal of the Indian Society of Soil Science* 61(2): 79-88.
9. Hati, K.M., Chaudhary, R.S., Mandal, K.G., Bandyopadhyay, K.K., Singh, R.K., Sinha, N.K., Mohanty, M., Somasundaram, J., Saha, R. (2015). Effects of tillage, residue and fertilizer nitrogen on crop yields, and soil physical properties under soybean-wheat rotation in Vertisols of Central India. *Agricultural Research* 4 (1): 48-56.
10. Hati, K.M. and Bandyopadhyay, K.K. 2011. Fertilizers (mineral, organic), effect on soil physical properties. (In: Glinski, J., Józef, H., Jerzy, L. (Eds.) *Encyclopaedia of Agrophysics*; Springer Publication, pp. 296-299.