

ONGOING RESEARCH PROJECTS

Programme I: Soil Health and Input Use Efficiency

(A) Institute Project

1. Long-term evaluation of integrated plant nutrient supply modules for sustainable productivity in Vertisol.
Muneshwar Singh, A. K. Biswas, B. P. Meena, A. B. Singh, R. S. Chaudhary
2. Evaluating rock phosphates for their suitability for direct application
Sanjay Srivastava, A.K. Tripathi, P Dey, Prabhat Tripathi and Gurav Priya Panduranga
3. Assessment of important soil properties of India using mid-infrared spectroscopy
K.M. Hati, M. Mohanty, Pramod Jha, R.S. Chaudhary, Nishant Sinha, J.K. Thakur, M. Vassanda Coumar, Pradip Dey, Muneshwar Singh, A.K. Patra and Javed Rizvi.
4. Evaluation of glauconite as source of potassium for crops.
A.O. Shirale, Gurav Priya Pandurang, Sanjay Srivastava, BP Meena and A.K. Biswas
5. Enhancing the productivity of major crops through improving the natural resource base of tribal inhabited areas of central India.
Shinogi K.C., Sanjay Srivastava, A.L. Kamble, B.P. Meena, N.K. Sinha, K. Bharati, Gurav Priya Pandurang, A.K. Tripathi, Hiranmoy Das, R.L. Raut (KVK, Balaghat), Rameshwar Ahirwar (KVK, Balaghat), Aparna Jaiswal (COA, Balaghat)
6. Mineralogy of Vertisols in relation K availability in central and western India
Gurav Priya Pandurang, AO Shirale, B.P. Meena, B.L. Lakaria, Sanjay Srivastava, P. Chandran
7. Micronutrients distribution in major soil orders of India as influenced by soil properties and land use pattern
S.K. Behera, A.K. Shukla, N.K. Sinha, J.K. Thakur and K. Kartikeyan (ICAR-NBSS&LUP, Nagpur)
8. Impact Assessment of Neem Coated Urea and Soil Health Card in Central and Western India
A.L. Kamble and Hiranmoy Das
9. Socio-Economic impact of use of polluted irrigation water on soil quality and crop productivity near Ratlam industrial area in Madhya Pradesh
Utkarsh Tiwari, J.K. Saha, M.V. Coumar, A.L. Kamble and Hiranmoy Das
10. Enhancement of Soil Health and Livelihood of Tribals in Central India
R.H. Wanjari, R. Elanchezhian, Prabhat Tripathi, R.K. Singh, Shinogi K.C, M.V. Coumar, Vasudev Meena and A.L. Kamble
11. Enhancement of nutrient (N & P) use efficiency and nutritional quality of wheat for improved soil and crop productivity
R. Elanchezhian, A.O. Shirale, B.P. Meena, Alka Rani, Sanjay Srivastava, Ajay, S. Ramana, A.K. Biswas and Renu Pandey (ICAR-IARI, New Delhi)

(B) Externally Funded Projects

12. Network Project on Organic Farming (ICAR, New Delhi)
A. B. Singh, B.P. Meena, Brij Lal Lakaria, S. Ramana and J.K. Thakur
13. Simulating the effect of elevated CO₂ and temperature on water productivity and nutrient use in soybean-wheat cropping system (NASF funded)
N.K. Lenka, Sangeeta Lenka, A.K. Shukla, R. Elanchezhian, J.K. Thakur, I. Rashmi, Pradip Dey, P. Chandra, K.K. Singh
14. Ensuring food security, sustainability and soil health through resource conservation based farmer FIRST approach in central India, sponsored by ICAR New Delhi
A.K. Patra, A.K. Vishwakarma, R.K. Singh, A.B. Singh, B.L. Lakaria, R.H. Wanjari, K. Bharati, AL Kamble, Asha Sahu, Shinogi K.C., Abhay O. Shirale, Hiranmoy Das

15. Assessing the impact of imbalanced use of chemical fertilizer on soil health using a soil function based quantitative approach funded by DST, New Delhi
N.K. Lenka, B.P. Meena, Sangeeta Lenka, AO Shirale, R.H. Wanjari, M.L. Dotaniya, R.K. Singh

Programme II: Conservation Agriculture and Carbon Sequestration vis-à-vis Climate Change

A. Institute Projects

16. Assessing greenhouse gas emission and soil carbon storage with reversal in tillage practice
Sangeeta Lenka, N. K. Lenka, Sonalika Sahoo, S. Bhattacharjya
17. Climate change impact on soil and water productivity of major crops in central India
N.K. Sinha, Seema Bhardwaj
18. Impacts of conservation agriculture on runoff and soil loss under different cropping system in Vertisols
Prabhat Tripathi, R.K. Singh, Seema Bhardwaj

B. External funded projects

19. CRP-Conservation Agriculture (LCPC: Dr. A.K. Biswas and DLCPC: Dr. R.S. Chaudhary)
 - a. Development, refinement and validation of conservation agriculture in Vertisols of central India and quantifying impact of CA practices on soil and environment”
K M Hati (PPI), J Somasundaram, A.K. Vishwakarma, Sanjay Srivastava, Pramod Jha
 - b. Demonstration of best-bet conservation agriculture practices on farmers’ fields in Vertisols of central India
AK Vishwakarma, RH Wanjari, RK Singh, KC Shinogi, AK Tripathi
 - c. Fine-tuning of conservation agricultural practices for Vertisols of central India
J Somasundaram, K Ramesh, S. Ramana, BP Meena and Abhay Shirale
 - d. Development of water and nutrient management practices in conservation agriculture for Vertisols of central India
Sanjay Srivastava, KV Ramana Rao and NK Sinha
 - e. Impact of conservation agricultural practices on soil health, carbon sequestration and greenhouse gas emissions in different production systems
Pramod Jha, Brij Lal Lakaria, M Mohanty, JK Thakur and K. Bharati
20. Hyper-spectral remote sensing approaches to evaluate soil quality and crop productivity of central India funded by DST
M. Mohanty, N.K. Sinha, K.M. Hati, R.K. Singh, Pradip Dey, R.S. Chaudhary, A.K. Patra and B.B.Gaikwad
21. Vulnerability and impact assessment of climate change on soil and crop production in Madhya Pradesh funded by UNDP-GEF-MoEFCC.
Sangeeta Lenka, N. K. Lenka, M. Mohanty, R. H. Wanjari and A. K. Patra
22. Cropping systems and soil management effects on soil organic carbon sequestration and greenhouse gas emission in Vertisols of central India under change climate scenarios funded by NICRA II-Phase
M. Mohanty, Pramod Jha, Sangeeta Lenka, J. Somasundaram, N.K. Sinha, A.K. Vishwakarma, R.S. Chaudhary and Muneshwar Singh
23. Assessing the potential impact of climate smart technologies on soil health and nutrient accounting in selected vulnerable districts of MP funded by EPCO, Bhopal
Sangeeta Lenka, N.K. Lenka, MV Coumar, M. Mohanty, S. Bhattacharjya, J.K. Saha, A.K. Patra
24. Assessing the potential impact of climate change and management on soil carbon and nitrogen storage in selected ecosystems of India funded by NASF

- Sangeeta Lenka, N.K. Lenka, Vasudev Meena, Asit Mandal, Biswapati Mandal, BCKV, West Bengal
25. Sustainable adaptive management of water resources to variable climates of Madhya Pradesh funded by ICARDA
M. Mohanty, N.K. Sinha, A.K. Patra

Programme III – Soil Microbial Diversity and Biotechnology

A. Inter-Institute Project (ICAR-IISS, Bhopal and ICAR-IISR, Indore)

26. “Effects of long term use of fertilizer and manure on soil functional diversity and nutrient supplying capacity under different soils and cropping systems”.
Sudeshna. Bhattacharjya, Asha Sahu, M.C. Manna, Muneshwar Singh, R.H. Wanjari, M.P. Sharma and A.K. Patra

B. Externally Funded Projects

27. India-UK nitrogen Fixation Centre (IUNFC), sponsored by BBSSRC DBT, New Delhi
S.R. Mohanty, D.L.N. Rao
28. Metagenomic mapping of microbial diversity in rhizosphere of major crops of India and Argentina offsetting production potential funded by DST
S.R. Mohanty, A.K. Patra, K. Bharati, Muneshwar Singh, J.K. Thakur
29. Exploring soil microbial community and mechanism in soil carbon sequestration under long term land uses in semi-arid sub-humid Central India funded by SERB, DST
S. Bhattacharjya
30. Ecogenomics of soil microbes involved in global climate mitigation and nitrogen use efficiency in rice-wheat agroecosystem of central India under elevated CO₂ and temperature" funded by DST
S R Mohanty, K Bharati, S Gangil (CIAE)
31. Evaluation of Soybean-rhizobia interaction under elevated CO₂ and temperature to develop climate ready microbial inoculants for central India funded by AMAAS
S R Mohanty, A Mandal, K Bharati
32. Enhancing decomposition rate and quality of biowaste through microbial consortia for improving soil health funded by ICAR NASF
M.C. Manna, Asha Sahu, Sudeshna Bhattacharjya, A.B. Singh, A. K. Tripathi, J.K. Thakur, Dolamani Amat
33. Exploring endophytic fungi for the phytoremediation of heavy metal contaminated soils funded by DST
Asit Mandal, JK Thakur, MC Manna, AK Patra, M. Vassanda Coumar
34. Ecogenomics of soil microbes involved in global climate mitigation and nitrogen use efficiency in rice-wheat agroecosystem of central India under elevated CO₂ and temperature funded by DST
SR Mohanty

Programme IV: Soil Pollution, Remediation and Environmental Security

A. Institute Project

35. Assessment of Cotton for the remediation of soils contaminated with heavy metals
S. Ramana, A.K. Tripathi, K. Bharati and Asha Sahu
36. Quantitative assessment of acid mine drainage affected areas in Madhya Pradesh
Madhumonti Saha, Ajay, Abhijit Sarkar, J.K. Saha and Hiranmoy Das

Externally Funded Projects

37. Management of Municipal Solid Waste (MSW) contaminated landfill area of Bhanpur, Bhopal sponsored by Bhopal Municipal Corporation
Ajay, Tapan Adhikari, K. Bharati, Asit Mandal and J.K. Saha
38. Reclamation and rehabilitation of copper mining affected land in malanjkhanda area of madhya pradesh, sponsored by Hindustan Copper Ltd. Malanjkhanda
Ajay, Tapan Adhikari, Asit Mandal and J. K. Saha
39. Management of municipal solid waste contaminated dumping area of Bhanpur, Bhopal funded by MPCST
Ajay, Tapan Adhikari, K. Bharati and Asit Mandal

Collaborative projects in other institutes where IISS scientists are associated in

40. Development of an Automated Soil Nutrient Sensing System
Sanjay Srivastava, A.O. Shirale, P.S. Tiwari (ICAR-CIAE, Bhopal), Vijay Kumar (ICAR-CIAE, Bhopal), Ramesh Kumar Sahani (ICAR-CIAE, Bhopal), Baban Kumar (CSIR-CSIO, Chandigarh) and Neelam (CSIR-CSIO, Chandigarh)

Consultancies, Contractual Services, Patents and Technology commercialization

Consultancies Contractual Services

S. No.	Title	Sponsorer	Project team
1	Evaluation of efficacy of sulphur and zinc containing complex fertilizers for maximizing yield through balanced nutrition of different crops in India	Zuari Agro Chemicals Limited	A.K. Shukla, A.K. Biswas, Sanjay Srivastava, S. K. Behera , B.P. Meena
2	Evaluation of efficacy of zinc metalosate and boron metalosate foliar supplements for maximizing yield through balanced nutrition of important crops grown in India	Indofil Industries Limited	A.K. Shukla, A.K. Biswas, S. K. Behera, B.P. Meena
3	Response of crop to applied Potassium in Vertisols of India.	PRII, Gurgoan	Muneshwar Singh, R.H. Wanjari, B.L. Lakaria, Abhay Shirale
4	Effect of aquasorb on water and nutrient use efficiency & crop productivity of soybean & tomato in selected soils of India	SNF India Pvt. Ltd. Vishakhapatanam	R.S. Chaudhary, R.K. Singh, K.M. Hati, B.P. Meena, A.K. Biswas, M. Mohanty and A.K. Patra
5	Effect of slow N release formulations for enhancing productivity and nitrogen use efficiency in cereals sponsored	Rhodia Specialty Chemicals India limited, Mumbai	B.L. Lakaria, Pramod Jha, Sanjay Srivastava, A.K. Vishwakarma, A.K. Biswas and A.K. Patra
6	Evaluation of Soil Test Kit of Warkem, Mumbai	Warkem Pvt. Ltd, Mumbai	Sanjay Srivastava, Pramod Jha, A.O. Shirale, M. Vassanda Coumar, Gurav Priya Pandurang, A.K. Biswas, Pradip Dey and A.K. Patra
7	Impact of viscose staple fibre industry treated effluent on soil health and crop production surroundings Nagda, M.P	Grasim Industries Limited, Nagda, Ujjain, M.P.	M.L. Dotaniya, J.K. Saha, Tapan Adhikari, Rajendiran S., R.H. Wanjari, Sonalika Sahoo and A.K. Patra
8	Evaluation of effect of Zeba fertilizer product on nitrate-N leaching	M/s UPL Limited, UPL House, 610B12, Bandra Village, Off Western Express Highway, Bandra-East, Mumbai- 400 051	A.K. Biswas, R. Elanchezhian, N.K. Lenka, A.O. Shirale, A.K. Patra