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, A. B. Singh, R. S. Chaudhary, B. P. Meena

2. Study on nanoporous zeolites for soil and crop management.

   K. Ramesh and I. Rashmi

3. Studies on soil resilience in relation to soil organic matter in selected soils

   N. K. Lenka, Sangeeta Lenka, Brij Lal Lakaria and Asit Mandal

4. Biofortification of grain sorghum and finger millet varieties with zinc through agronomic measures.

   Ajay, A.K. Shukla and J.K. Saha

5. Biochar on soil properties and crop performance

   Brij Lal Lakaria, Pramod Jha, A.K. Biswas, K.M. Hati, J. K. Thakur, Vassanda Coumar, A. K. Dubey (CIAE) and S. Gangil (CIAE)

6. Impact of crop covers on soil and nutrient losses through runoff in Vertisol.

   R. K. Singh, J. Somasundaram and I. Rashmi

7. Characterizing rooting behaviours, soil water patterns and nutrient uptake of soybean- chickpea under different tillage and water regimes in Vertisols.

   N. K. Sinha, M. Mohanty, Ritesh Saha and I. Rashmi

8. Integrated assessment of some IISS Technologies in enhancing Agro-Ecosystems productivity and livelihood sustainability

   Shinogi K.C., Sanjay Srivastava, A.B. Singh, D.L.N. Rao, Radha T.K, B.P. Meena, N.K. Sinha and Hiranmoy Das (On study leave)

9. Nano particle delivery and internalization in plant systems for improving nutrient use efficiency

   R. Elanchezian, A.K. Biswas, Tapan Adhikari, K. Ramesh, S. Kundu, A.K. Shukla and K. Raju Kumar

10. Soil quality assessment for enhancing crop productivity in some tribal districts of Madhya Pradesh (TSP)

    Rajendiran S., M. L. Dotaniya, M. Vassanda Coumar, N. K. Sinha, Sanjay Srivastava, A. K. Tripathi and S. Kundu

11. Evaluating rock phosphates for their suitability for direct application

    Sanjay Srivastava, K. Ramesh, A.K. Tripathi, I. Rashmi and PDey

12. Evaluation of modified urea materials and agronomic interventions for enhancing nitrogen use efficiency and sustaining crop productivity

    B.P. Meena, K. Ramesh, Pramod Jha and R. Elanchezhian

13. Standardization of foliar feeding of zinc for correcting its deficiency and grain enrichment in wheat

    Pankaj K. Tiwari, A. K. Shukla, R. Elanchezhian and B. P. Meena

B. Externally Funded Projects

14. Network Project on Organic Farming

    A. B. Singh, K. Ramesh, Brij Lal Lakaria, S. Ramana and J.K. Thakur

15. Use of nano sensors network for field detection of temperature and moisture stress in plant and soil (CRP-Nanotechnology)

    Tapan Adhikari, S. Kundu, C.D. Singh, Ajay, N.K. Sinha, A.K. Patra, Navkanta Bhat, K.S. Subramanium and Bajendra

16. Conversion of naturally occurring plant nutrient containing minerals into nano form by top down approach to enhance the availability of plant nutrients in soil and faster reclamation of problem soils

    Tapan Adhikari, S. Kundu, A.K. Shukla, K. Ramesh, Sudeshana Bhattacharya, J.K. Saha, A.K. Patra

17. Simulating the effect of elevated CO_2 and temperature on water productivity and nutrient use in soybean-wheat cropping system (NASF)

    N.K. Lenka, Sangeeta Lenka, A.K. Shukla, R. Elanchezhian, J.K. Thakur, I. Rashmi and Pradip Dey

18. Soil quality assessment and developing indices for major soil and production regions of India funded by ICAR-Extra Mural Project

    N.K. Lenka, A.K. Biswas, Rajendiran S, S. Kundu, S. Lenka, N.K. Sinha, Abhay Shirale, A.K. Viswakarma, R.H. Wanjari, B.L. Lakaria, A.B. Singh, A.K. Patra, Muneshwar Singh, D.L.N. Rao, A.K. Shukla, Pradip Dey.

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

A. Institute Projects

19. Evaluating conservation tillage on various sequences/rotations for stabilizing crops productivity under erratic climatic conditions in black soils of Central India

    J. Somasundaram, R. S. Chaudhary, Neenu S and ajay

20. Assessing impacts of climate change on different cropping systems in Central India and evaluating adaptation studies through crop simulation models

    M. Mohanty, K.M. Hati, N.K. Sinha, Sangeeta Lenka, Pramod Jha, Neenu S., R. S. Choudhary and R. Elanchezian

21. Weed Management for major cropping systems under conservation agriculture in Vertisols

    A.K. Vishwakarma, R.S. Choudhary, N.K. Sinha, B.P. Meena, K. Bharati and Sobha Sondhia

B. Externally Funded Projects

Other externally funded

22. 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 CApractices 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, BPMeena and Abhay

Shirale

d. Development of water and nutrient management practices in conservation agriculture for Vertisols of central India

Sanjay Srivastava, KV Ramana Rao, I Rashmi 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

NICRA

23. Integrated assessment of soil and crops for enhancing productivity and C- sequestration potential of Vertisols of central India under changing climate scenarios

M. Mohanty, Pramod Jha, Sangeeta Lenka, J. Somasundaram, N.K. Sinha, R.S. Chaudhary and Muneshwar Singh

Programme III – Soil Microbial Diversity and Biotechnology

24. Developing technique for acceleration of decomposition process using thermophilic organisms

Asha Sahu, U. B. Singh (NBAIM), J.K. Thakur, V. K Bhargav (CIAE), H.L. Kushwaha (CIAE), Asit Mandal, M.C. Manna and and A. Subba Rao

25. Greenhouse gas (GHG) emission from composting systems and characterization of GHG regulating microbes

K. Bharati, J.K. Saha, S.R. Mohanty and Shinogi K C

B. Externally Funded Projects

26. Biodegradation of pesticides under changing climate and metagenomic profiling of functional microbes funded by Depratment of Biotechnology, New Delhi

K Bharati, T K Radha, and S R Mohanty

27. Archaea and Actinobacteria in Vertisols of Central India-Assessment of Diversity, Bigeochemical Processes and Bioinoculant Potential funded by AMAAS

D.L.N. Rao, S.R. Mohanty, K. Bharati and T.K. Radha

28. In-situ residue decomposition of rice-wheat and sugarcane for enhancing crop productivity and soil health funded by ICAR-Extra Mural Project

M.C. Manna, Asha Sahu, R.C. Singh, Jyoti Thakur, Asit Mandal, Sudeshna Bhattacharjya, A.K. Tripathi, A.K. Patra, D.H. Phalkel

Programme IV: Soil Pollution, Remediation and Environmental Security

A. Institute Project

29. Interaction among tannery effluents constituents on heavy metals uptake by spinach.

    M. L. Dotaniya, J. K. Saha, Rajendiran S, M. Vassanda Coumar and S. Kundu

30. Impact of long term use of sewage water irrigation on soil and crop quality in Bhopal region of Madhya Pradesh.

    Vasudev Meena, M. L. Dotaniya, Vassanda Coumar, Rajendiran S, Asha Sahu and S. Kundu

31. Determination of baseline concentration for delineating contaminated areas in black soils of central India

    Rajendiran S., J.K. Saha, S. Kundu, Hironmoy Das, M. L. Dotaniya

B. Externally Funded Projects

32. Determination of critical limits for identifying heavy metals contamination and their threats in major soil types of India funded by ICAR-Extra Mural Project

    J.K. Saha, M.V. Coumar, S. Rajendiran, M.L. Dotaniya, N.S. Bhogal

New Projects (Institute)

33. 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, Javed Rizvi

34. Potential of Cotton for the remediation of soils contaminated with heavy metals

    S. Ramana, A.K. Tripathi, K. Bharati, Asha Sahu

35. Critical limits for Cd, Pb and Cu to eco-toxicological effects on soil organisms and plants for major soil orders in India

    M. Vassanda Coumar, Rajendiran S., M.L. Dotaniya, J.K. Saha, Tapan Adhikari, Ajay, S. Bhattacharya

Collaborative projects in other institutes where IISS scientists are associated in

36. Enhancing Resource Use Efficiency in Pulse Based Cropping System in Central India. Collaborating with ICAR-Indian Institute of Pulses Research, Kanpur (U.P.)

    R. Elanchezhian and Abhay Shirale

37. Isolation and characterization of heavy metal resistant bacteria & evaluation for their use in agriculture. Collaborating with NBAIM, Mau (U.P.)

M.C. Manna, A. Mandal, Asha Sahu, J.K. Thakur