



NICRA sponsored

TRAINING PROGRAMME ON

06 DAYS (11- 16 FEBRUARY 2025)

PROCESS-BASED AGRICULTURAL MODELS FOR NATURAL RESOURCE MANAGEMENT

Process-based agricultural models are computational tools designed to simulate interactions between soil, crops, water, and climate within agricultural systems. These models are built upon scientific principles that govern biophysical and chemical processes, enabling researchers and practitioners to analyze and predict the outcomes of various agricultural practices and environmental conditions. In the context of sustainable natural resource management, these models play a pivotal role by offering insights into optimizing resource use, enhancing productivity, and mitigating environmental impacts. They aid in understanding soil organic carbon dynamics, nutrient cycling, water use efficiency, and the effects of climate variability on crop growth. Models like APSIM, DSSAT, InfoCrop, SWAP and SWAT have been widely used to guide decision-making in areas such as irrigation management, land use planning, and climate adaptation strategies. Further, by integrating these models with remote sensing, GIS, and big data analytics, stakeholders can simulate multiple scenarios, evaluate sustainability indicators, and design resilient agricultural systems. Their application ensures that resource conservation and agricultural productivity go hand in hand, fostering a balance between human needs and ecosystem health. Training in process-based agricultural modelling equips professionals, students, and researchers with the skills to interpret complex systems, develop sustainable farming strategies, and address global challenges like food security and climate change.

Target Audience:

- Researcher, Scientist and assistant professor in agriculture, soil science, agricultural physics and natural resource management.
- Post Graduate students in agriculture, environmental science, and related disciplines

Key Topics to Cover:

- Introduction and Basics of Agricultural System Modelling
- Modelling Soil water balance
- Modelling Soil organic carbon dynamics and carbon credit estimation
- Modeling growth stages and yield prediction.
- Adapting farming systems to climate change.
- Integration with remote sensing and GIS.
- Machine learning and big data in process-based models.
- Soil spectroscopy for soil health management
- Hand on APSIM, RothC, SWAP, DNDC and DSSAT

Duration:

06 days (11- 16 February 2025)

Important dates:

Last date of receipt of Application: 31/01/2025



NICRA sponsored

06 DAYS (11- 16 FEBRUARY 2025)

TRAINING PROGRAMME ON

PROCESS-BASED AGRICULTURAL MODELS FOR NATURAL RESOURCE MANAGEMENT

Important Information for Participants:

- √ Only food and lodging will be provided by the organizing institute (ICAR-IISS, Bhopal) for this training.
- √ TA reimbursement will be limited to a maximum of Rs 2000/-.
- √ Participants must bring their laptop to participate in the training program effectively.
- √ A maximum 15 number of participants will be accommodated.

Registration form

Application Form For Participation In Training Programme

Organizing Institute: ICAR-Indian Institute of Soil Science, Bhopal

1. Full name (In block letters) :
2. Designation :
3. Present employer and address :
4. Address to which reply should be sent :
Postal address with PIN :
Phone/ Mobile No. :
Fax No. :
E- mail :
5. Permanent address :
6. Date of Birth :
7. Sex (Male/Female) :
8. Marital status (Married/Unmarried) :
9. Teaching/research/professional experience :
10. Field of specialization and current area of research/ teaching :
11. Academic record :

Degree	Subjects	Year of passing	Class ranks, distinction etc	University/ Institution	Other information
Ph.D.					
Post Graduation					
Graduation					

Date & Place

Signature of the applicant

12. Recommendation of the Head of the Department/Institute

CERTIFICATE

It is certified that the information has been verified from the office record and is found correct.

Date

Signature and designation of sponsoring authority

All correspondence should be addressed to:

Dr. Nishant K. Sinha

Senior Scientist (Ag. Physics)

Division of Soil Physics

ICAR-Indian Institute of Soil Science, Nabibagh, Berasia Road

Contact number: 8827-710-753

nishant.sinha76211@gmail.com, nishant.sinha@icar.gov.in