



## A Three Week Online National Certificate Course on

# Integrated Farming System for Sustainable Agriculture

January 03 to 23, 2022

### About

The project entitled "Centre for Advanced Agricultural Science and Technology (CAAST) on Climate Smart Agriculture and Water Management (CSAWM)" is functional at the Mahatma Phule Krishi Vidyapeeth (Agricultural University), Rahuri, Maharashtra since 2018 under the World Bank sponsored, National Agricultural Higher Education Project (NAHEP) of Indian Council of Agricultural Research (ICAR), New Delhi, Government of India. One of the major objectives of CAAST-CSAWM project is to develop the capacity amongst the faculties and students of MPKV, Rahuri and others for the development and adoption of the precision and climate smart agriculture and water management technologies as well as to conduct on-the-job training programmes and case study based learning to enhance the employment and placement rates along with self-employment, business and entrepreneurship opportunities.

### Background

Scientifically designed, tailor-made Integrated Farming System Models are promoted to achieve the vision of our Honorable Prime Minister Shri. Narendra Modi, i.e. Doubling Farmers income by 2022. Nowadays, at the national and state levels, the integrated farming system model is discussed and focused at length for doubling farmers' income. Integrated Farming Systems is a continuous process, and it depends on the market prices, resource availability (land, labour, water, capital etc.), domestic consumption, soil fertility and sustainability. Research on Integrated Farming System requires long-term study to assess the profitability, soil fertility after each sequence/year, nutrient, water profitability, employment generation, energy balance etc. IFS models have to be developed based on the agro-climatic situation, holding size, availability of resources like land, water, labour, marketing facilities, risk factors, family size, the ability of farm family members to participate in the



**IFS for Sustainable Agriculture**

farming activity and their knowledge and skill levels etc. However, location-specific data on various aspects of cropping and integrated farming systems are not available. Therefore, to assure a regular income on a sustainable basis to farmers, it is necessary to promote location-specific IFS models for farmers under the changing climatic scenarios under the conditions like rainfed and irrigated farming for the sustainability and livelihood of the farming community. Considering the importance of the Integrated Farming System, a three-week online certificate course is proposed to be jointly organized from January 03 to 23, 2022, by the CAAST-CSAWM, MPKV, Rahuri, AICRP-Integrated Farming System, MPKV, Rahuri and ICAR-Indian Institute of Farming System Research Modipuram, UP, India, with the following objectives.

### **Objectives**

1. To develop efficient, economically viable and environmentally sustainable IFS models for different zones.
2. To ensure optimum utilization and conservation of available resources and effective recycling of farm residues within system.
3. To maintain sustainable production system without damaging resources/environment.
4. To undertake capacity building and human resource development in IFS.

**Methodology for conduct of course:**

**Pre and Post Evaluation:** Pre and post certificate course evaluation will be carried out to evaluate the impact of the certificate course.

**Conduct of the Certificate course:**

The certificate course will consist of online lectures-cum-discussions, demonstrations, tutorials, case studies, experience sharing from progressive farmers in relation to climate resilient practices and technologies in integrated farming system.

**Project Report:**

The candidates are required to complete the case study based project reports (individual and group) and submit online.

**Evaluation:**

There will be evaluation of the candidates at the end of the each week, and final evaluation towards the end of the course. The evaluation will be in the form of MCQs, descriptive questions and power point presentation.

**Feedback:**

Candidates need to provide the feedback towards the end of certificate course.

**Duration:**

January 03 to 23, 2022 (Twenty one days)

**No. of seats:**

50 seats on "First-Come-First-Serve" basis (However, 50% seats are reserved for MPKV Students, Faculties and Scientists)

**Course fee:** (Non refundable)

Registration fee: Rs. 100/-

Course fee: Rs. 4000/-

(Course fee includes registration fee)

Students (constituent colleges) of MPKV, Rahuri are exempted from course fee; however, they need to pay the registration fee.

**Important dates:**

Last date of application: December 31, 2021.

**Confirmation of participation to the candidates:** January 01, 2022.

**Language:** English

**Who can apply?**

- Faculty Members, Scientist, Farmers, Govt. Officers, Non- Govt. Officers, Extension personnel, KVK Officers, Industry persons or any individual who is working and/or is interested in the field of agriculture.
- **Minimum Eligibility:** Graduate/ Diploma (3 years) or Final year students (registered for at least 7th semester or fourth year) from the bachelor degree program in Agricultural Science, Social Science, Agricultural Engineering and Engineering.

**Mode of Application:**

Interested candidates should visit following link to register for the certificate course.

<http://www.mpkv-caast.ac.in/page/certificatecourses>

**Documents required while applying:**

**MPKV Candidates:** The office reference number of "No Objection Certificate" in case of students and "Permission Letter" in case of staff in the box provided in the form; and email the scan copy of the "No Objection Certificate" or "Permission Letter" as the case may be to "mpkvcaast@gmail.com".

**Non MPKV candidates:** The documents in support of minimum eligibility for attending the certificate/module based course to be emailed to "mpkvcaast@gmail.com".

It will be the responsibility of the concerned candidate to obtain the permission of the concerned organisation, if necessary (in case of non MPKV candidate)

For details, refer guideline by clicking here 

**Expected Outputs:**

The successful candidate will be able to

1. Acquire knowledge on the basic concepts and principles of farming system and sustainable agriculture.
2. Expose to integrated farming system in relation to climate smart agriculture and water management.
3. Understand farming systems and components integration with resource recycling.
4. Acquire knowledge regarding preparation of bankable project on IFS.
5. Become a good entrepreneurs in integrated farming system

## Patron

### Dr. P. G. Patil

Hon. Vice-Chancellor,  
Mahatma Phule Krishi Vidyapeeth, Rahuri

### Dr. R. C. Agrawal,

National Director (ICAR-NAHEP) and  
DDG (Edn.) ICAR, New Delhi

## Advisors

### Dr. A. S. Panwar

Director, ICAR-Indian Institute of Farming System  
Research Modipuram, UP, India

### Dr. P. N. Rasal

Dean (F/A) and Director of Instruction,  
Mahatma Phule Krishi Vidyapeeth, Rahuri

### Dr. S. R. Gadakh

Director of Research & Director of Extn. Edu.,  
Mahatma Phule Krishi Vidyapeeth, Rahuri

### Dr. D. D. Pawar

Associate Dean, Dr. A. S. College of  
Agril. Engg. & Technology, MPKV, Rahuri

### Dr. S. D. Masalkar

Associate Dean, College of Agriculture and  
College of Horticulture, Pune

## Conveners

### Dr. Prabhat Kumar

National Coordinator (CAAST),  
ICAR- NAHEP, New Delhi

### Dr. N. Ravisankar

Principal Scientist & Programme Facilitator,  
ICAR-Indian Institute of Farming System  
Research, Modipuram, UP, India

### Dr. S. D. Gorantiwar

Principal Investigator, CAAST-CSAWM &  
Head, Dept. of Agricultural Engineering  
MPKV, Rahuri, Maharashtra

## Co-Convener

### Dr. M. G. Shinde

Professor, SWCE & Co-PI  
CAAST-CSAWM, MPKV, Rahuri, Maharashtra

## Course Director

### Dr. U. S. Surve

Professor, Dept. of Agronomy, PGI &  
Chief Agronomist, AICRP-IFS & Co-Nodal Officer,  
Organic Farming Research & Training Centre &  
Member, CAAST-CSAWM, MPKV, Rahuri

## Joint Course Directors

### Dr. R. M. Gethe,

Associate Professor, Department of Agronomy,  
PGI, Mahatma Phule Krishi Vidyapeeth Rahuri,  
Dist. Ahmednagar, Maharashtra, India

### Dr. Meraj Alam Ansari,

Scientist, ICAR- Indian Institute of Farming System  
Research, Modipuram, UP, India

## Course Coordinators

### Dr. Raghuvveer Singh,

Scientist, ICAR- Indian Institute of Farming System  
Research, Modipuram, UP, India

**Dr. R. K. Sonawane,** Research Associate (Agronomy),  
CAAST-CSAWM, MPKV, Rahuri

**Dr. Nilam Kondvilkar,** Research Associate (Soil  
Science),

**Er. Mohsin Tamboli,** Research Associate (Computer  
Science), CAAST-CSAWM, MPKV, Rahuri

## Experts:

**Dr. A. S. Panwar,** Director, ICAR-Indian Institute of Farming System Research Modipuram, UP, India

**Dr. C. Jayanthi,** Former Director - Director of Crop Management, Tamil Nadu Agricultural University,  
Coimbatore, Tamil Nadu, India

**Dr. Prakash Shingare,** Associate Dean, College of Fisheries, Ratnagiri, Maharashtra, India

**Dr. S. D. Gorantiwar,** Head, Dept. of Agricultural Engineering, MPKV, Rahuri, Maharashtra

**Dr. U D Chavan,** Head Dept. of Food Science and Technology, Mahatma Phule Krishi Vidyapeeth, Rahuri

**Dr. N. Ravisankar,** Principal Scientist & Programme, Facilitator, ICAR-Indian Institute of Farming System  
Research Modipuram, UP, India

**Dr. A. K. Prusty,** Senior Scientist, ICAR-IIFSR, Modipuram, UP, India

**Dr. Debashis Dutta,** Principal Scientist, ICAR-IIFSR, Modipuram, UP, India

**Dr. U. S. Surve,** Professor & Chief Agronomist IFS, Dept. of Agronomy and Member, CAASTCSAWM,  
MPKV, Rahuri, Maharashtra, India

**Dr. W. N. Narkhede,** Chief Agronomist, AICRP-IFS, Vasant Rao Naik Marathwada Krishi Vidyapeeth,  
Parbhani, Maharashtra, India

**Dr. S. B. Bhagat,** Chief Agronomist, AICRP-IFS, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli,  
Maharashtra, India

**Dr. J. P. Deshmukh,** Chief Agronomist, AICRP-IFS, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola,  
Maharashtra, India

**Dr. K. R. Latha,** Professor & Principal Agronomist, AICRP-IFS, Tamil Nadu Agricultural University,  
Coimbatore, Tamil Nadu, India

**Dr. Jacob John,** Professor & Head, IFS Research Station, Karamana, Kerala Agricultural University, Thrissur,  
Kerala, India

**Dr. Sohoni Singh Walia,** Principal Agronomist, School of Organic Farming, Punjab Agricultural University,  
Ludhiana, India

**Dr. N. P. Thakur,** Chief Scientist & Head, Farming System Research Centre, Sher-e-Kashmir University of  
Agricultural Sciences and Technology of Jammu, India

**Dr. K. K. Sharma,** Chief Agronomist, Advanced Centre for IFS Research, Assam Agricultural University,  
Jorhat, Assam, India

**Dr. M. C. Bhambri,** Chief Agronomist, AICRP on IFS and PI, Indira Gandhi Krishi Vishwa Vidyalay, Raipur,  
Chhattisgarh, India

**Dr. M. Goverdhan,** Chief Agronomist, AICRP on IFS, Rajendranagar, Hyderabad, India

**Dr. J. P. Tetarwal,** Agronomist, AICRP-IFS, ARS, Kota, Rajasthan, India

**Dr. Jayanta Layek,** Principal Investigator, AICRP-IFS, ICAR Research Complex for NEH Region, Umiam,  
Shillong, India

**Dr. Sanjeev Kumar,** Principal Scientist (Agronomy), ICAR Research Complex for Eastern Region, Patna,  
Bihar, India

**Dr. Manukonda Srinivas,** Senior Scientist, Acharya N.G. Ranga Agricultural University, Andhra Pradesh,  
India

**Shri. Dnyaneshwar Bodake,** Progressive Farmer, Pune, Maharashtra, India

**Dr. Hemant Deshmukh,** Assistant Professor of Plant Pathology, KK Wagh College of Biotechnology, Nasik,  
Maharashtra, India

**Dr. C. B. Latpate,** Officer Incharge, Sericulture Unit, Vasant Rao Naik Marathwada Krishi Vidyapeeth,  
Parbhani, Maharashtra, India

**Dr. V. P. Kad,** Associate Professor, Dept. of APE, Dr. ASCAE&T, Mahatma Phule Krishi Vidyapeeth Rahuri,  
Dist. Ahmednagar, India

**Dr. D. H. Kankhar,** Associate Professor of Dairy Science, College of Agriculture, Pune, Maharashtra, India

**Dr. P. B. Kharde,** Associate Professor, Dept. of Extension Education, Mahatma Phule Krishi Vidyapeeth  
Rahuri, Dist. Ahmednagar, Maharashtra, India

**Dr. S. R. Kulkarni,** Associate Professor, Department of Entomology, Mahatma Phule Krishi Vidyapeeth  
Rahuri, Dist. Ahmednagar, Maharashtra, India

**Dr. D. K. Deokar,** Associate Professor, Dept. of Animal Science & Dairy Science, Mahatma Phule Krishi  
Vidyapeeth Rahuri, Dist. Ahmednagar, Maharashtra, India

**Dr. S. S. Mandakmale,** Senior Scientist, Goat Project, Mahatma Phule Krishi Vidyapeeth Rahuri, Dist.  
Ahmednagar, Maharashtra, India

**Dr. S. A. Adangale,** Assistant Professor, Dept. of Animal Science & Dairy Science, College of Agriculture,  
Pune, Maharashtra, India

**Dr. Ravindra Nimase,** Assistant Professor, Dept. of Animal Science & Dairy Science, Mahatma Phule Krishi  
Vidyapeeth Rahuri, Dist. Ahmednagar, Maharashtra, India

**Dr. S. H. Mane,** Principal Investigator, Desi Cow Research and Training Centre, Mahatma Phule Krishi  
Vidyapeeth Rahuri, Dist. Ahmednagar, Maharashtra, India

**Dr. V. R. Joshi,** Incharge, AICRP on Arid Zone Fruit Crops, Mahatma Phule Krishi Vidyapeeth Rahuri, Dist.  
Ahmednagar, Maharashtra, India

**Dr. B. T. Sinare,** Associate Professor, NARP, Agroforestry, Mahatma Phule Krishi Vidyapeeth Rahuri, Dist.  
Ahmednagar, Maharashtra, India

**Dr. R. M. Gethe,** Associate Professor, Department of Agronomy, PGI, Mahatma Phule Krishi Vidyapeeth  
Rahuri, Dist. Ahmednagar, Maharashtra, India

**Shri. A. N. Deshmukh,** Director, Krishi Vishwa Foundation, Akole, Ahmednagar, Maharashtra, India

**Shri. Rahul Rasal,** Progressive Farmer, Parner, Ahmednagar, Maharashtra, India



# A Three Week Online National Certificate Course on

# Integrated Farming System for Sustainable Agriculture

January 03 to 23, 2022

## Tentative Schedule

**Date: 03/01/2022**

**Time: 10:00 to 11:30**

**Orientation and Theory: Sustainable Agriculture and farming system**

Sustainable agriculture-definition, concept & principles, farming system-definition, scope, need and objectives, role of farming system in sustainable agriculture, sustainable development goals.

**Time: 11:30 to 01:00**

**Theory: Sustainable Agriculture and farming system**

Types of farming system-mixed farming, diversified farming, dryland and irrigated farming, ranching, organic farming, natural farming, ZBNF/SPNF, agnihotra farming, biodynamic farming, Natueco farming, rishikrishi farming, Yogic/sahaj farming, response farming, precision farming, biological farming and integrated farming system.

**Time: 02:00 to 05:00**

**Practical:** Preparation of cropping scheme & cropping system for given situation- irrigated and rainfed areas.

**Date: 04/01/2022**

**Time: 10:00 to 11:30**

**Theory: Components of IFS**

Principles, significance, characterization and advantages of IFS, components of farming system- cropping, dairy, goat, poultry, fishery.

**Time: 11:30 to 01:00**

**Theory: Components of IFS**

Components of farming system- apiculture, sericulture, mushroom, bio gas and agro-forestry.

**Time: 02:00 to 05:00**

**Practical:** Study of existing farming practices in nearby village.

**Date: 05/01/2022**

**Time: 10:00 to 11:30**

**Theory: Component integration in IFS**

Nutrient recycling in IFS, crop & animal waste/ residue availability and utilization.

**Time: 11:30 to 01:00**

**Theory: Component integration in IFS**

Complementary integration and resource utilization between components in crop + livestock, viz., crop+ dairy, crop + goat, crop + poultry, crop + fish culture.

**Time: 02:00 to 05:00**

**Practical:** Exposure visit to on-station farming system.

**Date: 06/01/2022**

**Time: 10:00 to 11:30**

**Theory: Component integration in IFS**

Crop + mushroom, crop + sericulture, crop + apiary, crop + agro forestry.

**Time: 11:30 to 01:00**

**Theory: Component integration in IFS**

IFS models viz., irrigated areas, dry land areas, rainfed areas, hilly areas, Wetland areas.

**Time: 02:00 to 05:00**

**Practical:** Exposure visit to on farm farming system.

**Date: 07/01/2022**

**Time: 10:00 to 11:30**

**Theory: Farming system research methodology and evaluation**

Farming system research definition & methodology, Types of IFS models : prototype and low cost models

**Time: 11:30 to 01:00**

**Theory: Farming system research methodology and evaluation**

Evaluation of farming system research-physical efficiency (productivity of land, cropping intensity, crop yield index)

**Time: 02:00 to 03:30**

**Evaluation**

**Time: 03:30 to 05:00**

**Evaluation**

**Date: 08/01/2022**

**Time: 10:00 to 05:00**

**Case Study:** Synthesis of farming system model for rainfed areas

**Date: 09/01/2022- Holiday**

**Date: 10/01/2022**

**Time: 10:00 to 11:30**

**Theory: Farming system research methodology and evaluation**

Productivity of IFS, water budgeting, nutrient recycling efficiency, nutritive efficiency and energy efficiency

**Time: 11:30 to 01:00**

**Theory: Farming system research methodology and evaluation**

Employment generation and economics (cost of production, gross return, net return, BCR and per day return)

**Time: 02:00 to 05:00**

**Practical:** Exposure visit to waste recycling unit.

**Date: 11/01/2022**

**Time: 10:00 to 11:30**

**Theory: Farming system modules**

Existing farming system practices for different agro -eco-system of India & resource management (inputs and labour) under constraint situation.

**Time: 11:30 to 01:00**

**Theory: Farming system modules**

Integrated Farming system modules with resource utilization for lowland & coastal areas

**Time: 02:00 to 05:00**

**Practical:** Synthesis of alternate integrated farming system for different farm situations .

**Date: 12/01/2022**

**Time: 10:00 to 11:30**

**Theory: Farming system modules**

Integrated Farming system modules with resource utilization for irrigated upland, rainfed and hilly areas.

**Time: 11:30 to 01:00**

**Theory: Farming system modules**

Key factors for successful practice of farming system: diversity, recycling, aggregation and value addition. Scheme for promotion of IFS: farmer producer organization, National Mission on Sustainable Agriculture, Rainfed farming system, Scheme of rural development .

**Time: 02:00 to 05:00**

**Practical:** Preparation of calendar of operation for different integrated farming system

**Date: 13/01/2022**

**Time: 10:00 to 01:00**

**Practical:** Evaluation of integrated farming system modules proposed in terms of productivity, economics, employment, nutrient potential

**Time: 02:00 to 05:00**

**Practical:** Comparison of existing farming system practices with proposed integrated farming system

**Date: 14/01/2022**

**Time: 10:00 to 01:00**

**Feedback**

**Time: 02:00 to 05:00**

**Evaluation**

**Date: 15/01/2022**

**Time: 10:00 to 05:00**

**Case Study:** Synthesis of farming system model for irrigated areas

**Date: 16/01/2022– Holiday**

**Date: 17/01/2022**

**Time: 10:00 to 05:00**

**Case Study:** Evaluation of on-station IFS modul

**Date: 18/01/2022**

**Time: 10:00 to 11:30**

**Theory: Value addition**

Importance of value addition, value addition in cereals, millets, pulses, oilseeds, fruits, vegetables and livestock products -milk, meat & manure.

**Time: 11:30 to 01:00**

**Theory: Value addition**

Green house gas emission studies in Integrated Farming System .

**Time: 02:00 to 05:00**

**Practical:** Evaluation of integrated organic farming system modules proposed in terms of productivity, economics, employment, nutrient potential

**Date: 19/01/2022**

**Time: 10:00 to 05:00**

**Case Study:** Prototype models/bankable project on IFS

**Date: 20/01/2022**

**Time: 10:00 to 05:00**

**Evaluation of Case Study**

**Date: 21/01/2022**

**Time: 10:00 to 01:00**

**Evaluation of Case Study**

**Time: 02:00 to 05:00**

**Group discussion and interaction**

**Date: 22/01/2022**

**Time: 10:00 to 05:00**

**Feedback**

**Date: 24/01/2022 -Valedictory Session**

**Contacts:**

**Course Director:**

**Dr. U. S. Surve** - Mobile No. +91 9822606511, Email: [drulhas11@gmail.com](mailto:drulhas11@gmail.com)

**Joint Course Directors:**

**Dr. R. M. Gethe** - Mobile No. +91 9420639315, Email: [rajendragethe15@gmail.com](mailto:rajendragethe15@gmail.com)

**Dr. Meraj Alam Ansari** - Mobile No. +91 9089654323, Email: [meraj.ansari@icar.gov.in](mailto:meraj.ansari@icar.gov.in)

**Course Coordinators:**

**Dr. Raghveer Singh** - Mobile No. +91 9458613219, Email: [raghuveer.singh@icar.gov.in](mailto:raghuveer.singh@icar.gov.in)

**Dr. R. K. Sonawane** - Mobile No. +91 9403103233, Email: [ro\\_hhit@yahoo.com](mailto:ro_hhit@yahoo.com)

**Dr. Nilam Kondvilkar** - Mob. +91 9370368351, Email: [nilamkondvilkar@gmail.com](mailto:nilamkondvilkar@gmail.com)

**Er. Mohsin Tamboli** - Mob. +91 9860646586, Email: [mohasin.ayub@gmail.com](mailto:mohasin.ayub@gmail.com)

Jointly Organized by

ICAR-National Agricultural Higher Education Project (NAHEP)

**The Centre for Advanced Agricultural Science and Technology (CAAST) for**

**Climate Smart Agriculture and Water Management (CSAWM),**

**AICRP-Integrated Farming System**

**Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri**

Ahmednagar, Maharashtra (India) &

**ICAR-Indian Institute of Farming System Research Modipuram, UP, India**