Information Brochure

ICAR sponsored

Winter school

(03-23 February, 2027)

Harnessing the energy–water–food security in arid landscapes through agri-voltaic, solar photovoltaic and thermal technologies



Sponsored by

Indian Council of Agricultural Research

New Delhi

Organized by

ICAR-Central Arid Zone Research Institute (CAZRI), CAZRI Road, Jodhpur- 342003, Rajasthan, India

Course Leadership

Course Director: Dr. Surendra Poonia, Principal Scientist

Co-Course Directors

Dr. H. L. Kushwaha, Head & Principal Scientist

Dr. Hitesh Bijarniya, Scientist

Dr. Prem Veer Gautam, Scientist

Dr. Mathangi Raja Sekhar, Scientist

Dr. Vandita Kumari Choudhary, Scientist

Dr. Aman Verma, Scientist

Background

Increasing energy demand and the depletion of fossil fuel resources necessitate a shift towards renewable energy sources, particularly solar, wind and biomass. Agriculture accounts for approximately 7–8% of India's total energy consumption, mainly for irrigation, mechanization and agro-processing. Rajasthan, with abundant solar radiation (approximately 6.0 kWh m^{-2} day^{-1}) and over 300 sunny days annually, offers significant potential for solar energy applications. Agrivoltaics Systems (AVS), integrating crop cultivation with solar power generation, provide promising solutions for energy, water and food security while improving land-use efficiency, conserving soil moisture and reducing carbon emissions. ICAR–CAZRI has developed several innovative technologies, including a 105 kW AVS, solar irrigation systems, animal-feed solar cookers, PV/T hybrid dryers, solar desalination devices and PCM-based cooling and thermal storage systems. To promote these technologies, a 21-day ICAR Winter School on "Harnessing the Energy–Water–Food Security in Arid Landscapes through Agri-voltaic, Solar Photovoltaic and Thermal Technologies" is being organized at ICAR–CAZRI, Jodhpur, featuring expert lectures, practical training, demonstrations and field visits.

Objective

The main objective of organizing this winter School is to enhance knowledge and technical competence in emerging agri-voltaic, solar photovoltaic and solar thermal technologies for strengthening energy–water–food security in arid landscapes. The programme will focus on agrivoltaics system design and management, solar-powered irrigation, photovoltaic–thermal systems, solar energy-based agricultural processing, solar desalination, thermal energy storage, phase change materials (PCM), and renewable energy integration in agriculture. It aims to strengthen the capacity of researchers and professionals through advanced technologies, practical demonstrations and field exposure to develop and implement innovative, energy-efficient and climate-resilient solutions for sustainable agricultural production and resource conservation.

Course content

- Fundamentals of Solar Energy
- Solar Photovoltaic Technologies and Applications
- Agri-voltaic Systems (AVS)
- Solar-Powered Irrigation Systems
- Solar Thermal Technologies for Agriculture
- Thermal Energy Storage and Phase Change Materials (PCM
- Solar-Based Post-Harvest Processing and Value Addition
- Emerging Hybrid and Integrated Renewable Energy Systems
- Techno-Economic and Performance Evaluation of solar devices
- Field Demonstrations and Hands-on Training

Eligibility

Faculty and researchers in agricultural sciences and related disciplines from State Agricultural Universities (SAUs), ICAR Institutes, Central/State Fisheries and Veterinary Universities, and Krishi Vigyan Kendra (KVK) under NARES, not below the rank of Assistant Professor/Scientist or equivalent in the concerned subject, are eligible to apply. Selection based on short listing of applications and preference will be given to those who have not undertaken similar training anywhere. Decision of Course Director shall be final.

How to Apply

Participants are requested to send advance scanned copy of the nomination through email at winterschoolicarcazri2027@gmail.com. Also requested to take a printout and send duly signed copy through proper channel to the Course Director of Winter School by post along with registration fee, at the address and contact details given in the brochure. The last date for receiving the nomination is 20th January 2027.

Registration Fee

The participants are required to pay a sum of Rs. 50/- (Rupees Fifty only) as registration fee (Non-refundable) along with the completed application in the form of Demand Draft or Postal Order drawn in favour of “ICAR UNIT-CAZRI, JODHPUR”.

Boarding and Lodging

Participants will be paid travel fare to and fro through the shortest route from their respective institution to CAZRI, Jodhpur and back for journey by AC-II class train fare or bus as the case may be. TA to be paid on production of a certificate or tickets by the participant. No air fare will be provided. Free boarding will be provided during this training program.

How to Reach

Jodhpur is well connected through Rail and Bus transport and has links with all the major cities of India. The institute can be reached by hired or personal vehicle by road. Distance from major terminals of the city is:

From Railway Station: 6 km

From State Roadways Bus Stand: 8 km

Jodhpur is known as the "Sun City" because of its bright and sunny weather throughout the year. Named after Rao Jodha, who established in 1459 it rose to be the second largest city of Rajasthan and is a very popular tourist destination.

About CAZRI



The ICAR–Central Arid Zone Research Institute (CAZRI), Jodhpur, is a premier institute of ICAR under the Ministry of Agriculture and Farmers Welfare, Government of India. For over five decades, it has been engaged in developing innovative technologies for enhancing agricultural productivity, sustainable management of natural resources and climate resilience in arid and semi-arid regions. With advanced research facilities, state-of-the-art laboratories and strong national and international collaborations, CAZRI has emerged as a leading centre for arid zone research.

Correspondence address

Course Director

Dr. Surendra Poonia
Division of Agricultural Engineering and Renewable Energy
ICAR-Central Arid Zone Research Institute, Jodhpur
poonia.surendra@gmail.com (+91 9414700864)

Co-Course Directors

Dr. H. L. Kushwaha
hlkushwaha@gmail.com
+91 8800777399

Dr. Hitesh Bijarniya
hitesh.bijarniya@gmail.com
+91 9643258890

Dr. Prem Veer Gautam
veerpremgautam@gmail.com
+91 8377836322

Dr. Mathangi Raja Sekhar
raja.mathangi@icar.org.in
+91 9000354821

Dr. Vandita Kumari Choudhary
vandita.iasri@gmail.com
+91 8010242663

Dr. Aman Verma
aman.verma@icar.org.in
+91 9828080237

Important dates

Last date of application: January 20, 2027
Intimation of selection: January 23, 2027
Confirmation by participants: January 25, 2027

Application form

ICAR- Winter School on

Harnessing the energy–water–food security in arid landscapes through agri-voltaic, solar photovoltaic and thermal technologies

(03-23 February, 2027)

1. Full name (in BLOCK letters): .....
2. Designation: .....
3. Present employer and address: .....
4. Address to which reply should be sent (in BLOCK Letters) .....
5. Mobile No.: ..... E-mail: .....
6. Permanent address: .....
7. Date of Birth: .....
8. Sex: Male/Female: .....
9. Teaching/research/ professional experience (mention post held during last 5 years and number of publications with details).
10. Mention if you've participated in any seminar/summer/winter school/short course etc. during the previous year under ICAR/other rganization.....
11. DD No./Ref. No. ..... Dated ..... of Rs. 50/- (NON-REFUNDABLE) for registration of application (Demand Draft or Postal Order in favour of ICAR UNIT-CAZRI, JODHPUR) payable at Jodhpur.
12. Examination passed:

Academic record	Subject	Year	University/ Institute
Bachelor's			
Master's			
Ph.D.			
Others			

Signature of the Applicant with date

Recommendations of the forwarding Institute

Signature of the forwarding Authority
with Seal and Date

CERTIFICATE

It is certified that information furnished above is correct. Traveling allowances will be paid /will not be paid by this office.

Signature of the sponsoring Authority
with Seal and Date