

## HOW TO APPLY:

Interested candidates should apply online through websites <http://www.iasri.res.in/cbp/> or CBP vortal <http://cbp.icar.gov.in>. Hard copy of application duly forwarded by competent authority along with Demand Draft or Indian Postal Order of Rs. 50/- (non-refundable), drawn in favour of the Chief Scientist, Dryland Farming Research Station payable at Bhilwara should be sent to the Director, Summer School by post (Application form can also be downloaded from website [www.mpuat.ac.in](http://www.mpuat.ac.in)). **The last date of submission of nomination form is 05<sup>th</sup> July, 2017.** Number of participants will be limited to 25.

### Contact and Address:

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**Dryland Farming Research Station**  
(Maharana Pratap University of Agriculture & Technology, Udaipur)  
P.B. 62, Bhilwara-311001(Rajasthan)

## Application Form for summer school on

### Production of Bio-CNG and Organic Manure through Anaerobic Agro-Waste Decomposition Techniques

1. Full Name (in capital letters): .....
2. Designation: .....
3. Employer address: .....
4. Postal address (with Email and mobile no.)  
.....
5. Date of birth: .....
6. Sex (male/female): .....
7. Marital status: .....
8. Educational qualification:

Academic record	Examination passed	Subject	Year	University/Institution	Class/Rank
Bachelor's					
Mater's					
Ph.D.					
Others					

9. Mention details, if you have participated in training, during previous years: .....
10. Research/Teaching/Professional experiences (Post held & years):  
.....
11. Registration Fee of Rs. 50/- DD/Postal order No. ....  
Dated..... (In favour Chief Scientist, Dryland Farming Research Station payable at Bhilwara)

Date:

Place:

Signature of applicant

12. Recommendation of forwarding authority:

This is certified that information furnished by the candidate has been verified and found correct.

Signature of nominating Authority with seal



ICAR Sponsored  
**SUMMER SCHOOL**  
On



## Production of Bio-CNG and Organic Manure through Anaerobic Agro-waste Decomposition Techniques

**August 10-30<sup>th</sup>, 2017**



### COURSE DIRECTOR

**Dr. SUNIL KUMAR DADHICH**  
Assistant Professor  
Soil Science

### COURSE COORDINATORS

**Dr. DEEPAK SHARMA**  
Professor  
Renewable energy

### Dr. A.K. KOTHARI

Professor  
Soil & Water Engineering

Organized By

**Dryland Farming Research Station**  
(Maharana Pratap University of Agriculture & Technology, Udaipur)  
**Bhilwara-311001(Rajasthan)**

## **PREAMBLE**

Management of wastes and energy crisis are burning problems being faced by the world today. Rapid growth of population and uncontrolled and unmonitored urbanization has created serious problems of energy requirement and solid waste disposal. In India, thousands of tons of municipal solid waste (MSW) is generated daily, a major of which is organic in nature. Biodegradable waste of high calorific value containing plant nutrients is generated in the markets, hotels and kitchens are disposed off in municipal landfill or dumping grounds. It can be reused for productive purpose such as electricity or bio CNG or bio gas production through anaerobic decomposition. Biogas/Bio-CNG can be generated and supplied round the clock. Biogas system provides three-in-one solution of gaseous fuel generation, organic manure production and wet biomass waste disposal/management. Under unscientific agricultural wastes disposal systems, undesired methane is released into the atmosphere due to anaerobic digestion in landfills, lagoons or stockpiles which is burning issue of green house gas emission in context of global warming.

Vegetable market wastes contribute to a great amount of pollution therefore; it requires a strong need for appropriate vegetable waste management systems. Burning of agrowaste or other mode of disposal is ultimately loss of soil nutrients. Due to these practices, a negative nutrient balance in soil is developing. Other than energy production, agricultural wastes can be a valuable resource for improving soil fertility as slurry which comes out of the biogas plant is rich in plant nutrients and can be applied in fields directly or after drying as bio/organic manure.. There is a vast scope to convert these energy sources into biogas. Biogas is a product of bio-methanation process when fermentable organic materials such as cattle dung, kitchens waste, poultry droppings, night soil wastes, agricultural wastes etc. are subjected to anaerobic digestion in the presence of methanogenic bacteria. Bio-CNG is the purified form of biogas where all the unwanted gases are removed to produce more than 95 per cent pure methane gas and be used as replacement of natural gas (LPG and CNG)

By keeping this in view, a 21 days summer school on **“Production of Bio-CNG and Organic Manure through Anaerobic Agro-waste Decomposition Techniques”** is being organized by the Dryland Farming Research Station (Maharana Pratap University of Agriculture and Technology, Udaipur), Bhilwara, Rajasthan from 10<sup>th</sup> to 30<sup>th</sup> August, 2017.

## **DURATION:**

21 days from 10<sup>th</sup> to 30<sup>th</sup> August, 2017

## **ABOUT THE INSTITUTE**

Dryland Farming Research Station is a constituent unit of a foremost university of India; Maharana Pratap University of Agriculture and Technology, Udaipur and is situated at Bhilwara in Rajasthan. This station is conducting rainfed agricultural research and operational research for development of location specific rainfed technologies since 1972. Scientists of this station are engaged in research as well as teaching. Station has vast experience about number of research projects from NATP and state governments for the benefits of dryland farmers. Presently this station has All India Coordinated Research Project on Dryland Agriculture (AICRPDA), Operational Research Project (ORP), National Initiatives on Climate Resilient Agriculture (NICRA) from the Indian Council of Agricultural Research (ICAR) and non-plan research from the state government. This centre is also working under RKVY project for production, purification and bottling of biogas and power generation under project title “Anaerobic Decomposition of Fruits, Vegetables Wastes/Agro-waste to Produce Organic Manure and Biogas” This centre has received number of awards from different agencies including ICAR.

## **BHILWARA AT A GLANCE :**

Bhilwara is a Textile City of India and situated between the districts of Ajmer (in North-130 Km), Kota (150 km in East), Chittorgarh (50 Km) and Udaipur (in South-150 km) in Rajasthan. The weather during the course period will be pleasant *w.r.t.* temperature (24-30°C), Relative humidity (70-84%) and rainfall (260-400 mm). Nearby tourist places are Pushkar pilgrim, Nathdwara, famous Chittorgarh fort, Haldighati, Kumbhalgarh fort, Bundi fort, Lake city Udaipur, water fall in Menal and Hamirgarh eco-park.

## **HOW TO REACH BHILWARA**

**Road/Train connectivity:** Bhilwara is well connected through road transport from all the side with four lane network. Frequent buses (Sleeper/Volvo/Eexpress) are available from Delhi, Jaipur, Ahmedabad, Mumbai and other cities. This place is also well connected by Rail from all over the India through Delhi, Jaipur Bhopal, Ratlam and Kota junctions.

**Air connectivity:** Nearby airports are situated at Udaipur (150 km) and Jaipur (250 km)..

## **OBJECTIVES:**

To enhance the knowledge of scientists, researchers, subject matter specialist and teachers of SAUs/universities and ICAR institutions with recent advances in the area of bio-methanation for production of biogas/Bio-CNG, power generation and organic manure.

## **COURSE CONTENT:**

The course will broadly cover various aspects of anaerobic agrowaste digestion technology for production of biogas, purification and bottling of bio-CNG, power generation and production of organic manure. Lectures will cover recent developments in agrowaste management, power and energy generation from biodegradable waste, biogas production, potential of different agrowaste to produce fuel and energy, technological innovations in biogas/bio-CNG production, microbial decomposition and biomethanation of agrowaste, design aspects of biogas plant, biotechnological innovation for effective anaerobic digestion, feasibility of small scale biogas plant for CNG vehicles, techniques to enhance biogas production in winter, assessment of calorific value of substrate and nutritional value of biogas slurry, effects of bio-manure on plant growth and soil health. Exposure visits of bio-CNG production sites for practical demonstrations.

## **METHODOLOGY:**

The course will consist of blend of lectures, demonstrations,, case studies and field visits. It will provide excellent opportunity for mutual interaction and information sharing

## **ELIGIBILITY:**

Participants should be from ICAR Institutes/S AUs/CAU/ Agricultural faculty of AMU, BHU, Vishwa Bharti, deemed university and Nagaland University working on the post of Assistant Professors or equivalent and above.

## **BOARDING, LODGING AND TRAVEL :**

Selected participants will be provided free boarding and lodging facilities during training period. The participants will be paid for *to* and *fro* journey by rail/bus as per university norms on the production of tickets, restricted to a maximum of II AC. TA will be paid from the place of duty to summer school destination. Participants are advised not to bring their family members in the training course.