

## Location and Weather

The Institute is located at a distance of 160 km from New Delhi and is well connected to other parts of the country by rail as well as road. The weather in Karnal during the month of December will be moderately chilly.

## Travelling Allowance

The participants will be paid to & fro railway/bus fare on production of tickets by the shortest route restricted to maximum of AC III class as per the ICAR norms. Free boarding and lodging will be provided by the institute (Guests are not allowed).

## Contact us

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Phone : 0184 - 2259110/108

## Bank Details

Name of the account: ICAR unit NDRI Karnal  
Name of the Bank/Brach: State Bank of India, NDRI, Karnal  
Account Type: Current  
Account No: 65270548352  
IFSC code: SBIN0050326



## ORGANIZING COMMITTEE

### Patron

**Dr. Dheer Singh**  
Director & Vice Chancellor

### Chairman

**Dr. Archana Verma**  
Director CAFT & Head  
AG&B Division

### Programme Coordinator

**Dr. Anupama Mukherjee**  
Principal Scientist, AG&B Division

### Joint Coordinator

**Dr. Rani Alex**  
Sr. Scientist, AG&B Division

### Dr. Indu Devi

Scientist, LPM Section



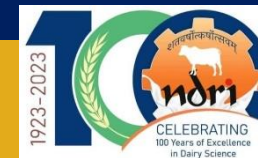
Last date of receipt  
of application

**5<sup>th</sup> November, 2022**

Intimation to selected  
candidates

**10<sup>th</sup> November, 2022**

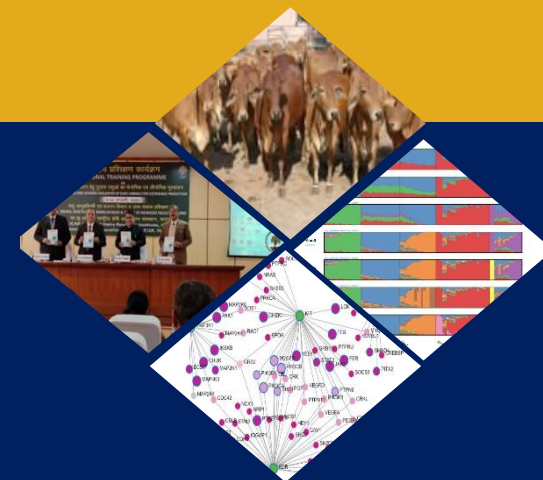
## Announcement



## National Training Programme on

Exploring integration of multiomics  
and conventional breeding  
approaches for sustainable livestock  
production

**1-21<sup>st</sup> December 2022(21 days)**



## Organized by

**Centre for Advanced Faculty Training  
AG&B Division  
ICAR- National Dairy Research Institute  
Karnal- 132001**

## Sponsored by

**Agricultural Education Division,  
Indian Council of Agricultural Research, New Delhi**



**ICAR- National Dairy Research  
Institute  
(Deemed University)  
Karnal- 132001 (Haryana)**



## About the training

It is matter of great pleasure to announce the 36<sup>th</sup> National Training Programme on “Exploring integration of multiomics and conventional breeding approaches for sustainable livestock production” during 01 to 21<sup>st</sup> December, 2022 under the aegis of Centre of Advanced Faculty Training (AG&B) at Animal Genetics & Breeding Division, ICAR-National Dairy Research Institute, Karnal (Haryana).

India has diverse animal genetic resources of farm livestock species and breeds. India occupies first rank in global milk production, but their productivity and sustainability is low. Conventional animal selection and breeding methods were based on the phenotypic performance and is not precise in prediction the genetic worth. The advent of high-throughput *omics* techniques makes it feasible to estimate the actual genetic potential of the animals. It has now become possible to collect and access large and complex datasets comprising different genomics, transcriptomics, proteomics, metabolomics, and phonemics data as well as animal-level data that provide new opportunities to better understand the mechanisms regulating animals' actual performance. The implementation of advanced genomic technologies for production and reproduction traits has shown to enhance genetic gain as compared to traditional approaches.

The proposed National Training programme plans to address application of quantitative and population genetic tools for improving the productivity and welfare of farm animals for developing effective breeding strategies for livestock improvement in India.



## Course Contents

Enhancing productivity of Indigenous cattle and buffaloes; Marker Assisted Selection; Genomic selection; Field Progeny Testing of Breeding Bulls; Linear Models in Animal Breeding; Prediction of breeding values using BLUP; Estimation of genetic trends; Principal component analysis; Linear Discriminant analysis; Statistical packages LSML, SAS, WOMBAT; Univariate and multivariate animal models; Random regression model; Bayesian approaches for genetic parameter estimation; Artificial Neural Network models for analysis.

Molecular Cytogenetics; PCR and its variants; Real Time PCR based expression analysis; SNP genotyping; Evolution of Animal Breeding and Prospects of Genomic Selection in Livestock, Next generation sequencing data and Genome assembly; Quality control of SNP chip data; RNA Seq/ Differential Gene expression/Transcriptome Analysis; Genome Editing and CRISPER Technology; Whole genome sequencing and Genome-Wide Association study; High through put phenotyping a new dimension to genomics; Landscape genomics for identifying selection signature

Precision breeding based on image analysis using machine algorithm; Gene annotation and network analysis of genomic data; Genomic approach in conservation of livestock species; Molecular approaches for augmenting reproduction, Prioritization of Livestock breeds for conservation; Role of sire and its fertility in overall productivity of animals.

## Eligibility

This training programme is open to all those who are below 50 years of age and possess Ph. D. /Master's degree in any branch of Animal Sciences preferably engaged in teaching and research in the areas of Animal Genetics and Breeding, Livestock Production and allied discipline

## Number of Participants

A total of 25 candidates will be selected for this course. The selection of candidates will be made by a screening committee as per the available guidelines of the ICAR.

## Procedure for Application

The applicants desirous of participation may send their online nomination for the training through CBP portal site (<http://iasri.res.in/cbp>) as per the procedure mentioned. The hard copy of the successfully uploaded application must be sent to the Course Director after approval of the competent authority

1. Visit the website <http://cbp.icar.gov.in/>.
2. Login using USERID and PASSWORD
3. After login click on “Participant Training” & apply against the training program
4. Fill the Proforma and submit online
5. Take a printout of submitted application & send through proper channel by post

## About the Institute

ICAR-National Dairy Research Institute is the premier research institution that undertakes research, teaching, and extension activities towards dairy developments in the country. Being the national institute, it conducts basic and applied research aiming to enhance animal productivity and to develop cost-effective technologies for the benefit of dairy farmers. Further, the institute provides high-quality manpower to meet the human resource requirements for the overall dairy development in the country. Over the last several decades, the institute has been continuously working to develop its R&D and HRD programmes to better serve the nation in terms of food security, human resource generations, technology translation, and economic prosperity to dairy farmers