

## Rationale of the Course

Phenomic-level data are necessary to decipher the causes of complex phenomena including animal production, health, reproduction, and evolutionary fitness. It helps to understand the genomic variants that affect the phenotypes. Phenomics is a necessary complement to genomics. Our ability to characterize phenomes lags behind our ability to characterize genomes. The phenotypes to be collected routinely could range from direct measurements of traits of individual animals to metagenome, proteome, metabolome and functional genomics assays. Development of methods for the measurement of existing and new phenotypes is needed. However, there is a great dearth of knowledge on the range of phenotypes to be collected and how they are to be analysed and interpreted. The training program aims to disseminate information on recent advances in phenome data collection, analysis and interpretation so that better integration between genomic and phenomics is achieved leading to improved livestock health and production.

## Course Content

Data recording methods and pedigree analysis. Statistical packages for animal breeding data analysis. Utilising various software packages like Microsoft excel, SPSS, WOMBAT, BLUPF90 for analysis of data. Partitioning of variance including the maternal effects, permanent environmental and temporary environmental effect. Longitudinal data analysis using Random Regression Models. Bayesian Statistics and its application in animal breeding data analysis. Overview of genome, transcriptome and metagenome data analysis. Statistical, quantitative, and computational aspects of genomic selection. Mortality and morbidity pattern and disease data analysis. Logistic regression. Recording and analysis methods of milkability traits, dairy temperaments, feed conversion efficiency traits etc.

## Patron

Dr. A Sahoo, Director, ICAR-NRCC, Bikaner

## Important Dates

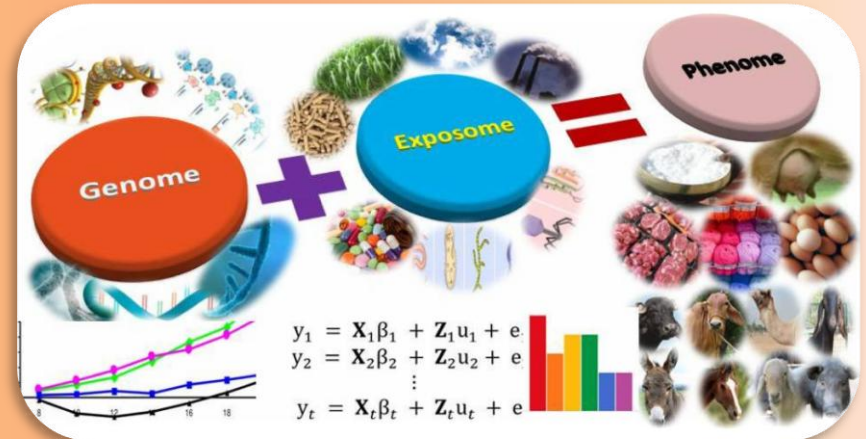
Last date for receipt of nominations- **December 20, 2023**

Intimation of selection- **December 22, 2023**

## ICAR Sponsored Short Course

### Recent Developments in Livestock Phenome Data Recording, Analysis and Interpretation in the Era of Genomics

03-12 January, 2024



### Course Director

Dr. Ved Prakash, Senior Scientist

### Course Coordinators

Dr. Artabandhu Sahoo, Director

Dr. Basanti Jyotsana, Senior Scientist

### Sponsored by

Indian Council of Agricultural Research, New Delhi -110 012

### Organised by

ICAR- National Research Centre on Camel  
PB No- 07, Jorbeer, Bikaner 334 001 (Rajasthan)

<https://nrccamel.icar.gov.in>



## Boarding and Lodging

Participants will be provided free boarding and lodging by NRCC as per ICAR norms of the Short course. The trainees will be accommodated in the Institute Guest House/Hostel.

## Travelling Allowance

The candidates selected for participation in the training will be provided travelling expenses as per their entitlement restricted to 2<sup>nd</sup> AC rail fare by the shortest route after submission of original tickets. No DA will be paid to the participants.

## Weather

The average January temperature in Bikaner ranges from a high of 22°C to a low of 8°C. It is advised to carry warm clothing.

## Address for Correspondence

### Course Director

**Dr. Ved Prakash**

Senior Scientist (Animal Genetics & Breeding)

ICAR- National Research Centre on Camel

Post Box - 07, Jorbeer, Jodhpur Bypass

Bikaner: 334 001 (Rajasthan) INDIA

Phone No. 0151- 220183

Mob: 9352666016, 9610996016

Email: [drvedagb@gmail.com](mailto:drvedagb@gmail.com)

[Ved.Prakash4@icar.gov.in](mailto:Ved.Prakash4@icar.gov.in)

### Course Coordinators

**Dr. A. Sahoo**

Director

ICAR-NRCC, Bikaner

Mob: 9414719922

**Dr. Basanti Jyotsana**

Senior Scientist

Animal Biotechnology

Mob: 8290271718

## Eligibility

Applicants with a Post Graduate degree and not below the rank of Assistant Professor /Scientist or equivalent from SAUs / CUs / DUs / ICAR / National Institutes / KVKs, in the disciplines of animal science are eligible. The person with animal genetics and breeding and data analysis background will be given preference. A total of 25 candidates will be selected for this course. The selection of the candidates will be made by a screening committee as per the available guidelines of the ICAR.

## Procedure for participation

Nominations for the training should be sent online through the CBP portal site (<https://cbp.icar.gov.in/>). The hard copy of the successfully submitted online application along with a postal order/DD transaction details of Rs 50 /- (Non-refundable) drawn in favour of ICAR Unit NRCC, Bikaner payable at Bikaner must be sent to the Course Director after approval of the competent authority. The amount can be also paid through NEFT transaction in the institute account: ICAR Unit, NRCC, Bikaner, Account No-10077740055, Branch-SBI Sadulganj, Bikaner, IFSC code-SBIN0007260. In case of any difficulty in applying online using the CBP portal, the participants may also send the application form duly filled and approved by the competent authority of the organisation to the Course Director or Course Coordinators at the address given in the brochure.



## About NRCC

ICAR-National Research Centre on Camel, Bikaner, is a premier research centre of the Indian Council of Agricultural Research (ICAR) under the Department of Agricultural Research and Education, Ministry of Agriculture and Farmers Welfare, Govt. of India. Considering the importance of camel in the socio-economic development of arid and semi-arid zones, the Government of India established a Project Directorate on Camel at Bikaner, Rajasthan, India on 5th July 1984 under the aegis of the Indian Council of Agricultural Research which was upgraded to National Research Centre on Camel on September 20, 1995. The NRCC has modern laboratories fully equipped to handle modern research in the fields of camel physiology, reproduction, biochemistry, genetics and breeding, biotechnology, health, nutrition, camel management and milk products technology. The camel maintains elite herd of 300 camels comprising Bikaneri, Jaisalmeri, Kachchi and Mewari camels. Currently, Scientists of the Centre are working on more than 11 internal research projects, 5 inter-institutional and externally funded projects and 2 research projects with international collaboration.

## How to Reach

The Bikaner city is well connected with train and bus services. There are two main railway stations viz., Bikaner junction and Lalgarh, which are about 10 and 13 km away from the NRCC Bikaner. After arriving at the railway station one can reach the campus by hiring a Taxi /auto. NRCC is located on the bypass road of Bikaner-Jodhpur highway. One can also reach Bikaner via travelling to Delhi, Jaipur and Jodhpur.