

## How to apply

The interested candidate should submit their application online using CBP portal ([www.cbp.icar.gov.in](http://www.cbp.icar.gov.in)). After filling the online application, take a print out of the application and get it approved by the competent authority of the organization. Upload the scanned copy of the approved application through CBP portal on or before 18<sup>th</sup> July, 2016 and send a hard copy to the Course Director along with a sum of Rs. 50.00 (Rupees Fifty only) as registration fee (non-refundable) in form of Demand Draft drawn in favour of ICAR Unit NRC on Yak payable at Dirang. Selection of the participants will be from online applications and the list of selected participants will be uploaded/displayed on the CBP portal and also at [www.nrcy.org.in](http://www.nrcy.org.in) on 19<sup>th</sup> July, 2016. Selected candidates will also be informed by email.

However, candidates may send an advance copy (by email) to the Course Director/Coordinator.

## Accommodation and Travelling

Free boarding and lodging will be provided to the participants during the training period at the guest house and scientist home of ICAR-NRC on Yak, Dirang. Travel allowance to the participants will be paid as per their entitlement for the class of travel, restricted to the maximum of AC II tier fare by the shortest

route. Participants are requested to produce original money receipts/tickets in support of their claim. The reimbursement will be made as per ICAR guidelines.

Participants are requested to reach Guwahati latest by 6 AM on 21<sup>st</sup> August, 2016. The organizers will arrange their journey from Guwahati to Dirang which will start by 7 AM from Guwahati on 21<sup>st</sup> August, 2016 (It will take nearly 10 hours to reach Dirang).

During the month of August the temperature in Dirang will be ranging from 10° to 20° C. Therefore, participants are requested to bring warm clothing accordingly.

**All Correspondence may kindly be addressed to:**

**Course Director:**

**Dr. Sourabh Deori**, Scientist  
Email: [sourabhd1@redffmail.com](mailto:sourabhd1@redffmail.com)  
Mob: +91-9401274039/ +91-8259810378

**Course Coordinators:**

**Dr. Vijay Paul**, Senior Scientist  
Email: [vpaul.nrcy@gmail.com](mailto:vpaul.nrcy@gmail.com)  
Mob: +91-8414990193/ +91-9402474192

**Dr. Pranab J. Das**, Senior Scientist  
Email: [drpranabjyotidas@gmail.com](mailto:drpranabjyotidas@gmail.com)  
Mob: +91-9402283632/ +91-8257036830



# ICAR Sponsored Short Course

On

*Optimizing fertility in  
livestock of hill ecosystem  
applying modern approaches*

**From 22<sup>nd</sup> August to  
31<sup>st</sup> August, 2016**

**Organized by**

## ICAR-National Research Centre on Yak

P.O. Dirang, West Kameng District  
Arunachal Pradesh – 790101

[www.nrcy.org.in](http://www.nrcy.org.in)

## ICAR-NRC on Yak: An overview

This ICAR institute was established in the year 1989 at Dirang in the West Kameng district of Arunachal Pradesh with a vision of Conservation and improvement of yak for higher productivity and profitability through innovative research. The experimental yak farm of the institute is located at Nykmadung (2750 meter above mean sea level and 31 km away from Dirang). Scientists of the institute have contributed tremendously in development and application of modern reproductive tools in yak husbandry. Some of the notable achievements includes: semen freezing and application of Artificial Insemination, production of Embryo Transferred calf, oestrus synchronization and fixed timed A.I., ultrasound guided transvaginal ovum pick up and birth of first IVF yak calf. For their untiring work, the scientists of the institute were awarded with Jawaharlal Nehru Award, Fakhruddin Ali Ahmed Award, CSIR Award for Science & Technology Innovations for Rural Development and many others awards from different professional societies for their scientific contribution to yak husbandry.

### Introduction

Livestock forms the integral part of hill ecosystem. In the hilly terrains, where agriculture is very meager, livestock are the main source of economy for the highlanders. Ruminants in hill ecosystem comprises of yak,

sheep and hill cattle. They survive under harsh environmental conditions like extremes of climate and feed and fodder scarcities. The reproductive physiology is also different in these animals than their counterpart in the plains. Reproduction in livestock of hill ecosystem is affected by season, climate, day length and availability of feed and fodders substantially. These animals do not reproduce round the year due to nutritional and environmental stress, which is a major hindrance to their reproductive performance. Therefore, scientific interventions using modern techniques may be best possible alternative to augment fertility in these animals. Nutritional, improved managemental practices and application of biotechnological tools can be suitably applied to optimize the reproductive performances in the livestock of hill ecosystem.

### Course Content

This short course will expose the participants to different reproductive biotechnological tools, managemental and nutritional practices that can be applied to the livestock of hill ecosystem in the form of lectures and hands on training.

- Application of reproductive biotechniques in high altitude animals.
- Effect of climate change on animal reproduction.
- Semen preservation and artificial insemination in small ruminants.

- *In vivo* and *in vitro* production of embryos for conservation of high altitude animals.
- Ultrasound guided ovum pick up.
- Nutritional interventions to augment fertility in livestock of hill ecosystem.
- Sperm transcripts: markers for male fertility.

### Venue

ICAR- National Research Centre on Yak, Dirang, West Kameng District, Arunachal Pradesh – 790 101.

### Duration of the Course

The course has been approved for 10 days from 22<sup>nd</sup> August to 31<sup>st</sup> August, 2016. It will comprise of lectures and practical sessions.

### Who can participate?

The course is open for the professionals working not below the rank of Scientist/Assistant Professor and equivalent including Subject Matter Specialists of KVKs in the concerned subject under Agricultural/ Veterinary/ Dairy / General Universities, ICAR institutes and state departments having masters degree in Veterinary/ Animal/ Dairy/ Agriculture and allied disciplines. The working knowledge of computer is essential. The number of participants for the course will be limited to maximum 20 (Twenty) only.