Eligibility for Participation

Applicant should be M V Sc / Ph D in Animal Science / Biotechnology or related discipline, working in the cadre of Scientist / Assistant Professor and above or equivalent in the National Agricultural Research System (NARS) including state Agricultural Universities, Central Agricultural University and Central Universities.

How to Apply

The interested candidates should and apply online through ‘Capacity Building Programme (CBP) portal as follows:

- Visit the website: http://www.iastri.res.in/cbp/
- Login using your user ID and Password. For new user, create user ID using ‘Create New Account’ link.
- After login, click on Participation in Training link and fill the Performa.

In addition, hard copy of the duly filled application form along with registration fee should be sent to the Course Director of programme through proper channel. An advance scanned copy of the nomination may be sent by email.

The last date for receiving the nomination is 30th September, 2015.

Registration Fees

The participants are required to pay an amount of Rs. 50/- as a registration fee (Non-refundable) to attend the programme. The fee is accepted in the form of Indian Postal Order/Demand Draft in favour of “ICAR UNIT, NDRI” payable at Karnal.

Durations: 10 days (8-17th December 2015);
Number of participants: 25

Travel & Accommodation

Selected participants will be paid for their to and fro journey restricted to AC-11 tier train fare by the shortest route or bus fare on submission of tickets. Free boarding and lodging will be provided to the participants as per ICAR norms during the training programme.

All correspondence should be addressed to:

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ICAR Sponsored Short Course

Crossbred Male Infertility and Bovine Genomics

December 8-17, 2015

Animal Biotechnology Centre  
ICAR-National Dairy Research Institute  
(Deemed University)  
KARNAL-132001, HARYANA, INDIA
Crossbred Male Infertility and Bovine Genomics

In order to augment the milk production in India the crossbreeding of our Indian breeds (Bos indicus) with European breeds (Bos taurus) was adopted in the seven decade of the last century. The significant contribution of the crossbreeding in increasing milk production of country can be realised by the milk production statistics over the years of the India. However, the crossbred male animals are often inferior to purebreds in semen production and more than 50% of young crossbred bulls are removed from the semen stations because of poor semen quality, libido and freezability. Poor semen quality was found to be the main reason of disposal in adult crossbred bulls above three years of age. A large percentage of bulls (40 – 70%) produced non freezeable quality of semen with a very high occurrence of abnormal spermatozoa in the semen ejaculates. The problem in cross breed male is mainly due to two main reasons:

- European breeds (Holstein, Jersey etc.) have been selected over decades under intense selection pressure only for milk production traits. Thus the fitness traits like disease resistance and reproductive performance traits are compromised.
- It is well known that in the mammalian inter species cross (in this case Bos taurus and Bos indicus) the male individuals suffers in their reproductive performance (Following the concept of species; Haldane rule). This is may be due to incompatibility in their autosomes, sex chromosome and in the meiosis process.

Crossbreeding of indigenous stocks with elite exotic bulls through artificial insemination is popular practice in the dairy industry. The unavailability of quality bulls and poor quality semen production of crossbred bulls have become major constraints to implementing a crossbreeding program. Semen production is a quantitative trait governed by several genetic and non-genetic factors. Presently, the emergence of male infertility and susceptibility to disease in Indian cross breeds has been visibly increased. Our understanding to the bovine genomics has increased many folds in the recent years. In the era of the next generation sequencing, new perspective has been developed to understand the issues related to interspecies crosses and hybrid sterility in mammalian species. With the help of technological advancement in animal biotechnology, newer genetic leads are established to understand the genetic causes of male infertility and genetic incompatibilities in cross breeds. Availability of genomic information on bovine and leads on functional genomics has provided the multiple ways to gain insight into biology of the animals.

Objectives

The objective of this short course is to enhance the knowledge and expertise of researchers working on the vital aspects of animal biotechnology such as bovine genome organization, genetic cause of male infertility, genetic incompatibilities, interspecies cross and hybrid sterility in mammalian species and bovine transcriptomics with a key goal to understand various domain of male infertility in crossbred bulls.

Course Content

The course content has been designed to understand the male infertility with a comprehensive coverage on the recent understanding and progress in the field. The training will be organized under well-structured sessions consisting of both theoretical and practical classes. Lectures will be delivered by the eminent experts in the field and hands on training will be an integral part of the programme. The ten days training programme will cover the following topics of interest:

1. Isolation of DNA / RNA by invasive and non invasive methods.
2. Analysis of comparative genome organization of major mammalian species.
3. Differences in Bos indicus and Bos taurus genes / genomes
4. Concept of copy number variation of coding gene / non-coding genes in complete genome.
5. Interspecies cross and Hybrid sterility in mammalian species.
6. Genomic incompatibilities between Indian and European breeds.
8. Meiosis and Incompatibilities of Genome of Bos indicus and Bos taurus