

सूचना विवरणिका Information Bulletin

2016-17

With Application Form
For Doctoral Programme



भा.कृ.अ.प.-राष्ट्रीय डेरी अनुसंधान संस्थान

(मान्य विश्वविद्यालय) करनाल 132001 भारत

ICAR-NATIONAL DAIRY RESEARCH INSTITUTE

(Deemed University) KARNAL-132001 (Haryana) India

Cost of information Bulletin including entrance examination fees and postal charges Rs. 1200/- (for General, OBC) & Rs. 600/- (for SC/ST/PH)

Publisher

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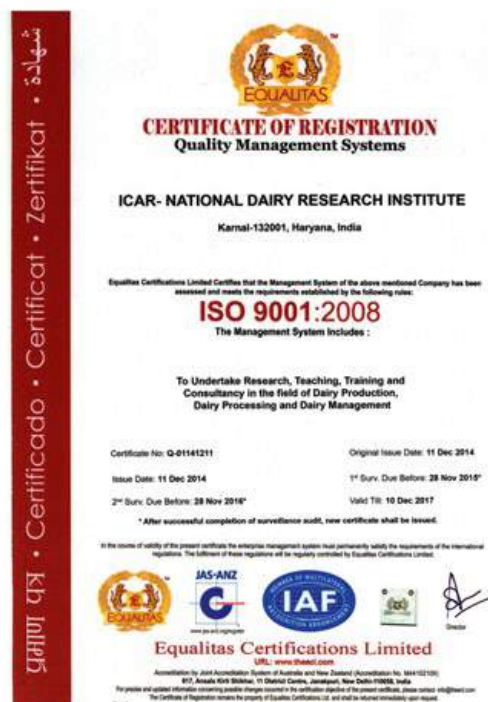
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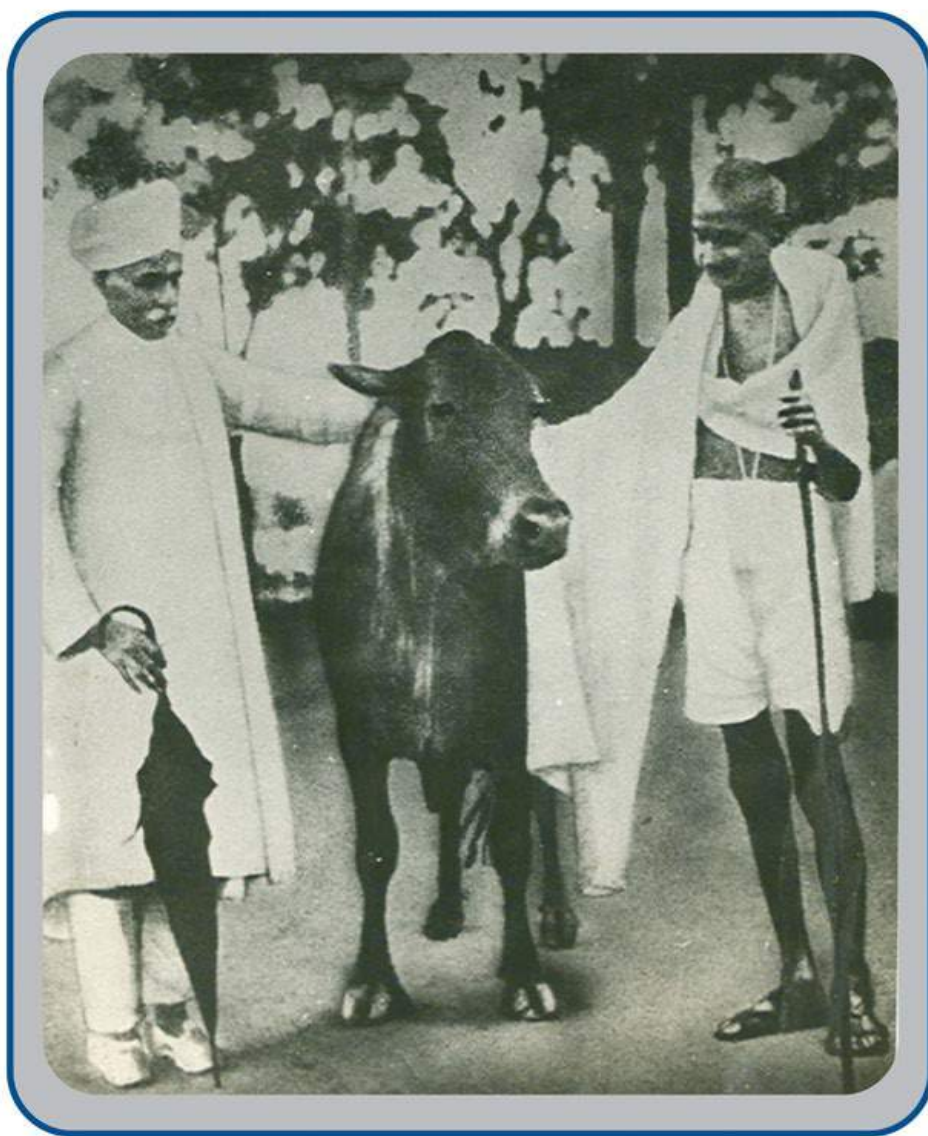
ISO 9001 : 2008



National Dairy Research Institute, Karnal enjoys the status of Deemed University vide Gazette of India Part-1 Notification No. F.9-15/85-U.E. Dated 28th March, 1989 issued by the Govt. of India, Ministry of Human Resource Development (Deptt. of Education)

INFORMATION BULLETIN

2016-17



ICAR-NATIONAL DAIRY RESEARCH INSTITUTE

(Deemed University)
Karnal - 132001, INDIA

1.0	Introduction	1
2.0	Regional Stations	5
3.0	Academic Programmes	7
3.1	Doctor of Philosophy	7
4.0	Procedure for Application	12
5.0	Entrance Examination & Selection Procedure	12
6.0	Counseling Process	13
7.0	In-service Candidates and their Selection Procedure	14
8.0	Number of Seats	15
9.0	Reservation	16
10.0	Age Limit	16
11.0	Foreign Students	16
12.0	Institute Scholarship	17
13.0	Award of Medals and Merit Certificates	18
14.0	Syllabus	19
15.0	Extra Curricular Activities	19
16.0	Hostels	19
17.0	Health Care	20
18.0	Right to Refuse Admission	20
19.0	Registration	20
20.0	Ragging	21
21.0	Class Attendance	21
22.0	Rules for Fines	21
23.0	Summary Cancellation of Registration	21
24.0	General Information	22
25.0	Fees	23
26.0	Academic Calendar	24
27.0	Syllabus For Entrance Examination For Ph.D.	25
	Annexure-I	36
	Annexure-II	38
	Annexure-III	40
	Annexure-IV	41
	Annexure-V	42
	Annexure-VI	43
	Annexure-VII	44
	General Administration	46
	NDRI Faculty	47

1.0 INTRODUCTION

1.1 National Dairy Research Institute, Deemed University (here-in-after referred to as the Institute), serves as the prime centre for Research, Extension and Manpower Development Programmes of the country in the field of Dairying. The Institute has developed from the erstwhile Imperial Institute of Animal Husbandry and Dairying established at Bangalore in 1923. The main campus of NDRI is now located at Karnal in Haryana State. It has two regional stations: Southern Regional Station at Bangalore and Eastern Regional Station located at Kalyani (West Bengal).

1.2 Objectives of the Institute



A view of Administrative Block

- 1.2.1 Dairy Education: Organizing and conducting programmes both at the undergraduate and post-graduate levels in various branches of dairy science to meet manpower needs of the country.
- 1.2.2 Study of Dairy Production: Research on livestock nutrition, growth, reproduction, physiology, genetics/ breeding and management to produce milk efficiently and economically.
- 1.2.3 Study of Milk and its Processing: Chemistry, microbiology, quality control and technology of milk and milk products, design and development of dairy equipment.
- 1.2.4 Study and Survey of Economics, Management and Extension: Economics of milk production and processing under farm and field conditions; dissemination of new technologies to farms and industry.

1.2.5 Training and Demonstration: Organizing short period training programmes and demonstration of package of practices for field applications.

1.2.6 Collaboration: Collaborating with national and international research and training institutions in dairying and allied fields for exchange of information and advancing new knowledge, both in basic and applied fields of dairyscience.

1.3 Location and climate

1.3.1 National Dairy Research Institute is located on the northern outskirts of Karnal city in Haryana, on the National Highway No. 1, about 125 kms North of Delhi. It is well connected by road and rail being on the main trunk route connecting Delhi with Amritsar and Chandigarh.

1.3.2 The elevation of Karnal is 250 meters, above mean sea level, latitude 29.43 N and longitude 77.2 E. Minimum temperature falls to near freezing point in winter and maximum goes upto 45°C in summer. The annual rainfall is about 70 cms.

1.4 Organization

1.4.1 The Director is the administrative Head of the Institute and its regional stations. He is assisted by three Joint Directors in administration, coordination of academic, research and extension activities of various divisions and regional stations.

1.4.2 Various research, academic and consultancy activities of the Institute are organized in the areas of dairy production, processing and management on the subject-matter basis through different Division/ Sections, namely, Dairy Cattle Breeding, Livestock Production and Management, Dairy Cattle Nutrition, Dairy Cattle Physiology, Dairy Chemistry, Dairy Engineering, Dairy Microbiology, Dairy Technology, Animal Biochemistry, Forage Research & Management, Dairy Economics, Statistics &

Management, Dairy Extension and Animal Biotechnology.

1.5 Facilities in Education

There are modern facilities for delivery of lectures as the classrooms are provided with internet & multimedia gadgets. Each Division has well equipped UG & PG Laboratories for conduct of practical classes. For Post-graduate research work, well equipped specialized laboratories are available in different divisions. Most of the faculty have international exposure and possess degrees earned from reputed Indian and foreign universities. Additionally subject-matter specialists from the different countries of the world come to the Institute as consultants on teaching/ research/ assignments. The teaching curricula are periodically updated keeping in view the recent scientific developments and to fulfil the needs of the fast developing dairy industry. Centres of excellence in milk production, milk processing and biotechnology have been established at the Institute under the financial assistance from UNDP/ICAR/DBT. The Institute has seven hostels with modern facilities, of which two are exclusively for girl students. Married students are also provided with separate hostel facilities. An International Hostel is also available for the students coming from abroad.

1.6 Facilities in Dairy Production

The Institute maintains a Livestock herd having about 1700 animals consisting of different breeds of cattle (Karan Swiss, Karan Fries, Tharparkar, Sahiwal), Murrah buffaloes and goats. The animals are being maintained and fed as per standard scientific practices. Several programmes are being carried out for attaining higher productivity per animal. Modern State of Art Milking Parlours – Flat Barn and Vario-Tendom systems have been commissioned for efficient and clean milk production. The average production of milk per day in the

Cattle Yard varies between 3500 to 4500 liters during different months. The animals are managed under loose housing system. To manage the elite cows and buffaloes, the State of Art shelter system with facilities of individual animal feeding and data recording are available. A fodder farm of approximately 400 hectares supplies fresh green fodders like Maize, Cowpea, Berseem and Oats. A well equipped workshop is



A view of Animal Biotechnology Centre

available for maintaining the farm equipment and machinery. Model dairy units for demonstration of package of practices with high producing dairy cows and buffaloes are also maintained for the benefit of farmers and trainees.

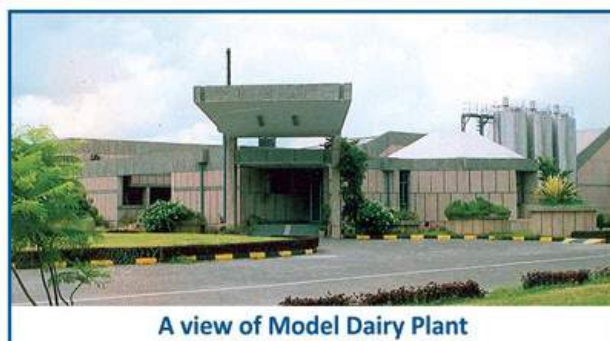
1.7 Facilities in Milk Processing

A well equipped dairy plant for handling 10,000 litres milk per day was installed in 1962 and renovated in the year 1984. Basic equipments are available for processing different type of milk, fat rich products, indigenous milk products, condensed and dried milk products, various types of cheese and fermented milk products. Facilities are available for the product development and to give practical training to the students for familiarizing them with the operational aspects of a commercial dairy. During the year 1989 a Revolving Fund Scheme was introduced in Experimental Dairy under AP cess Fund Project by the Ministry of Agriculture. In the year 2004, Experimental Dairy has been granted International Standards Certification for its quality and Food Safety Policy i.e. ISO 90012000 HACCP-

15000. In March 2010, Experimental Dairy has been certified for ISO 9001-2008 & HACCP-15000.

1.8 Model Dairy Plant

With the objective of providing facilities for imparting in-plant training to the students of NDRI Deemed University, a commercial dairy has been established in the campus of NDRI under the auspices of Operation Flood Programme. The dairy plant has state of the Art Facilities for various processes. The plant has been designed to handle 60,000 liters of milk per day with the capital investment of Rs. 11 crore. In the first phase of the project, the dairy plant is equipped with facilities for processing and packing of



A view of Model Dairy Plant

market milk, ice cream, cheese, paneer and ghee. Students of NDRI are trained in the various operations in the plant so that they get necessary exposure of managing the manufacturing operations under commercial environment. This gives them necessary skills and self confidence to manage middle level managerial position in the Dairy Industry.

1.9 Business Planning and Development (BPD)

The BPD unit at ICAR-National Dairy Research Institute (NDRI), Karnal is established with the objective to promote dairy and food agribusiness entrepreneurs through enhancing their technical and business skills, commercialization of dairy and food technologies; provide services on marketing assistance, quality evaluation, research and development for business

development and assist small entrepreneurs for setting up their business ventures. The reservoir of technology developed on the basis of R&D work done at the Institute is transferred for the infusion of science and technology in the area of Dairy Production, Dairy Processing and Dairy Management on professional basis through the consultancy services. The BPD extends help for strengthening the dairy industry in the country by providing R&D support towards new product/process development, equipment development, problem solving research and also undertaking sponsored research programs. The consultancy services are also provided for the preparation of techno-economic feasibility reports for new projects, vetting of project proposals received through financial institutions, testing of dairy products for export/import etc. Specialized training programs are also conducted at this Institute from time to time for imparting training to the students/ entrepreneurs. The revenue earned through the consultancy services is utilized for strengthening the R&D infrastructure of the institute.

1.10 National Library in Dairying

The Institute Library has an impressive collection of literature on Dairy Science and related subjects. More than 100 periodicals are subscribed to keep track of the current scientific/technical developments. There are 91,766 volumes which includes 51,994 books, 33,358 bound journals, 4,646 theses, 268 microfiches and 1500 CDs. Library has an excellent computer section having fifty workstations for students and staff of the institute. Students use these to get current information in the advanced research areas and for communication.

The Library provides Internet, Email, Documentation, Reference, Current Awareness Services, CD- ROM Literature scanning through CD-ROM of CAB Abstract,



A view of National Library in Dairying

Food Science Technology Abstract, AGRIS, Derwent Biotechnology Abstract, Indian Standards and ISO Standards on food products including milk and dairy products on CD-ROM. The Library also provides Photocopying, Document Scanning, Printing and Computerised Issue-Return and reservation facilities. The Library, NDRI is an active partner of Agricat (a sub-portal under WorldCat). Presently ~50,250 catalogue records of Library, NDRI available on Agricat/WorldCat. Library digitized ~2000 contents/records of institute outputs, which includes valuable books, publications, reports, conference proceedings and reprints etc. available on KrishiKosh-Institutional Repository of Indian National Agricultural Research System. In addition of above complete online library catalogue is also available on URL: library.ndri.res.in by using Koha-Library Management System.

1.11 Computer Facilities

Computer Centre is a central facility to provide computational support and training to the scientists, students, research scholars and the administration. There is a well established Computer Laboratory equipped with latest computer systems together with laser printers. The computer systems support FORTRAN, C, C++ and Visual Programming languages. A large number of software packages such as LIMDEP, LSML-76, MATLAB, MS-Office 2003/2007, MySQL Server 2008, SAS 9.3, SPSS 18, SYSTAT, TORA, etc., are available in different environments, i.e., LINUX,

Windows/Windows Server (98, 2000, 2008, XP, NT). The Agriculture Knowledge Management Unit (AKMU) cell established with the help of ICAR is fully functional with the Internet and e-mail connectivity through National Knowledge Network (NKN) node (1 Gbps) provided by the National Informatics Centre (NIC) Govt. of India and through leased line provided by ERNET India Ltd. The Institute has a Local Area Network (LAN) connecting all the divisions/ sections through optical fiber/UTP cable to cover the main buildings and through ADSL switches for distantly located buildings, providing connectivity to all the Scientists, Technical/Administrative Officers/Students. Student hostels are also connected to Institute LAN through Wi-Fi network to enable the students to access these Internet and library resources round the clock. AKMU cell is also undertaking the implementation of ICAR sponsored programs like Personnel Management Information System (PERMISNet), National Information System for Agriculture Education Network (NISAGENet) and Half yearly Progress Monitoring System (HYPM). Also, statistical Cell is functioning under Computer Centre, which disseminates university related information to various state and national-level government agencies. Computer Centre continued to prepare daily fortnightly and monthly MIS reports relating to milk production, supply of feeds and fodders, herd performance, animal management system, etc. for decision support to the appropriate authorities using in-house developed software. The Computer Centre is also extending its technical and ICT infrastructure support for smooth functioning of this ERP system. An online examination centre is also operational for conducting various exams of ICAR-ASRB such as Net/ARS-Preliminary Examinations.

1.12 Students Counseling and Placement Cell

The Institute has a Student's Counseling and Placement Cell, of which a senior faculty member acts as Chairman. The main

objective of the Cell is to collect and disseminate the information related to the job opportunities in private and government sectors and to invite various organizations for campus interviews. Students' counseling is also done at times on the advancement of their career in respective subject matter/ discipline areas. The university has a very impressive track record of placement in highly competitive professions both within and outside the country.

1.13 Society for Innovation & Entrepreneurship in Dairying-Technology Business Incubator (SINED-TBI)

Technology Business Incubator has been established at NDRI, Karnal with the broad objective of promoting knowledge-based and innovation-driven dairy enterprises in the country. NDRI TBI has state of the art start-up friendly infrastructure, with common resource sharing arrangement to support budding entrepreneurs among



A view of Technology Business Incubator Building

students and technocrats from all over the country. The facility already available including pilot scale plant at Experimental dairy as well as Model Dairy Plant. The Centre has full time management team that has extensive experience in entrepreneurship, product development, and marketing, securing venture capital funding and organizational development.

1.14 Experimental Dairy

A well equipped dairy plant for handling 10,000 litres of milk per day was installed in 1962 and renovated in the year 1984. Basic equipments are available for processing different type of milk, fat rich product, indigenous milk products, condensed and dried milk products. Facilities are available for the product development and to give practical training to the students for familiarizing them with the operational aspects of a commercial dairy. During the year 1989 revolving fund scheme was introduced in Experimental Dairy under AP cess Fund Project by the ministry of Agriculture. In the year 2004, Experimental Dairy has been granted international standards Certification for its quality and Food Safety Policy i.e. ISO 9001 2000 HACCP-15000. In March 2010, Experimental Dairy has been certified for ISO 9001-2008 & HACCP-15000.

2.0 REGIONAL STATIONS

2.1 Southern Regional Station

2.1.1 Southern Campus of NDRI is located in Adegodi, Hosur Road, National Highway No.7 about 7 Kms far from Bangalore City and Cantonment Railway Stations. Bangalore is well known for its salubrious climate with the maximum temperature at around 37°C and minimum temperature at about 8°C. The average rainfall of the city is about 100 cm per year.

2.1.2 The Campus is engaged in research, teaching, training, transfer of technology and consultancy activities through following sections: Dairy Chemistry & Microbiology, Dairy Technology, Dairy Engineering, Dairy Production, Education & Training, Economics and Extension.

2.1.3 The Campus has the necessary infrastructure needed for milk production, processing of milk; transfer of technology and to impart education and training. The fodder farm of

21 hectares raises high yielding fodder crops round the year for a herd of about 195 animals. The experimental dairy plant has the capacity to process 1000 lit. of milk/day. A variety of dairy products are manufactured and sold through the milk parlour. The library holds 12590 books, 10,857 bound volumes, 2464 thesis and 1,259 reprints and subscribes 75 Indian journals relevant to various disciplines of dairy science. The Campus has good hostel and guest house facilities for the students and visitors. The staff dispensary meets the medical needs of the staff and students.

2.2 Eastern Regional Station

2.2.1 The Eastern Regional Station (ERS) of National Dairy Research Institute (NDRI), established in 1964, is located at Kalyani in the district of Nadia in West Bengal. It serves as a vital link between the main Institute and the distant Eastern and North Eastern parts of the country. Kalyani is well linked by rail and road with Kolkata and is situated at a distance of nearly 50 km from the heart of the city (Kolkata). The nearest railway station is Kalyani of the Eastern Railway, located at a distance of 2 km from the institute campus.

ERS is established on a plot of 100 acres of land with good infrastructure in terms of Laboratories, Cattle Farm, Fodder Farm, Library, Hostel, Guest House etc.



A view of ERS Building, Kalyani

2.2.2 There are six sections which are engaged in research work on various aspects of Dairy Cattle Production viz. Animal Nutrition, Animal Breeding, Animal Biotechnology, Livestock Production Management, Dairy Extension and Animal Physiology & Reproduction. Since 2014-15 Academic Session, three years Diploma in Animal Husbandry and Dairying (DAHD) course has been introduced. Beside this, dissertation work of postgraduate and Ph.D students in different discipline are also being offered at this campus.

2.2.3 The Cattle Yard maintains around 150 crossbred cattle with machine milking facility. The station maintains a fodder field of 27 hectares where round the year fodders are cultivated. The Library, though small, contains 1500 books, 3225 volumes of bound journals and other periodicals, 23 regular journals in the field of Dairying. Besides, Annual Reports of different Institutes and proceedings of various workshops and seminars are also available for reference. It serves as a referral library for the research scholars of various Universities, Research Institutes and Dairy Organizations in the region. The computer center has adequate facilities for the maintenance of data-bases. The VSAT connectivity offers instant internet access.

2.2.4 The round the year extension services are conducted by the ERS which includes Training programmes, Exhibitions, Health & fertility camps, Off-campus training camps etc. Training Programmes on "Scientific Dairy Farming" and "Artificial insemination and Veterinary first aid" for educated unemployed rural youth are organized at regular intervals. Field visits, capsule courses and orientation programmes are also organized for the farmers of Dairy Cooperative Societies and NGOs on request.

3.0 ACADEMIC PROGRAMMES

The following educational programmes are being offered at NDRI, Karnal and its Southern Regional Campus, Bangalore:

1. Diploma in Dairy Technology
2. Diploma in Animal Husbandry & Dairying
3. B.Tech. (Dairy Technology)
4. Master's Programme
5. Doctor of Philosophy

Accreditation

- All the academic programmes of NDRI Deemed University have been reviewed and accredited by the ICAR Accreditation Board for a period of five years from August 2008 to July 2013.

Academic Highlights

- Admissions strictly through Entrance Examinations.

- Institute follows a semester system. Each semester is of 18 to 19 week duration.
- Summer vacation is of approximately 6 to 7 week duration.
- Regular academic sessions.
- Strict adherence of academic calendar and academic regulations.
- Strict discipline. Violation of regulations may lead to permanent dismissal of the student.
- Following 10 point scale evaluation system.
- Each student is evaluated in each course continuously throughout the semester.
- More and more emphasis on practical training.
- Updating of syllabi according to need.

3.1 DOCTOR OF PHILOSOPHY

- 3.1.1** The Institute offers Ph.D. programmes at NDRI, Karnal and after doing course work the students may be placed at Karnal or Bangalore/ Kolkata campus and also other ICAR Institutes for undertaking the thesis work. Ph.D. Programme is offered in the following disciplines:

<u>Code</u>	<u>Discipline</u>
1.	Dairy Microbiology
2.	Dairy Chemistry
3.	Dairy Technology
4.	Dairy Engineering
5.	Animal Biochemistry
6.	Animal Biotechnology
7.	Animal Genetics & Breeding
8.	Livestock Production & Management
9.	Animal Nutrition
10.	Animal Physiology
11.	Dairy Economics
12.	Dairy Extension Education
13.	Agronomy (Forage Production)
14.	Animal Reproduction, Gynecology & Obstetrics
15.	Food Safety and Quality Assurance

3.1.2 Duration

The duration of the course for the degree of Doctor of Philosophy shall be at least six semesters (3 academic years) for the students with 4+2 or 3+3 UG & PG programme. The student with 3+2 background will undergo pre-requisite courses and the duration will be 8 semesters (4 academic years). The maximum period of stay of a scholar for completion of degree requirement for obtaining Doctoral degree shall be 6 years. It will be 8 years in case of scholars with one year pre-requisite courses. During the first two semesters every scholar shall register himself/herself for the course specified in the syllabus. Scholar must pass the courses before the submission of thesis. He/She also required to stay at least 18 months with the Major Advisor to pursue his research work for thesis. Extension of time will be allowed in a very specific case with justified reasons.

3.1.3 Eligibility Requirements

Candidates having passed (or due to appear at the final examination) their Master's degree in the concerned field with Overall Grade Point Average (OGPA) of at least 6.60/ 10.00 in ten-point scale, at least 3.25/5.00 in five-point scale, at least 2.60/ 4.00 in four-point scale for General, OBC and UPS categories candidates whereas for SC/ ST/ Physically Handicapped (PH) candidates the said requirement is an OGPA of at least 5.60/10.00, 2.75/ 5.00, 2.20/ 4.00

respectively. In other cases, where grade-points are not awarded and only marks are awarded, the candidate must have secured at least 60% marks for General, OBC and UPS categories whereas for SC/ ST/ PH categories the minimum requirement is 50% marks. (Please note that equivalence between OGPA and % marks will not be acceptable). The candidate must have completed all requirements including thesis viva voce examination or project training etc., on or before 31st July 2016.



Dr.A.K. Srivastava, Director NDRI, Karnal receiving ISO 9001:2008 certificate from Hon'ble Union Minister for Agriculture Shri Radha Mohan Singh

Qualification for Admission in Different Disciplines

Code & Discipline	Qualifications
(1) Dairy Microbiology	<ul style="list-style-type: none"> • M.Sc. / M.Tech. Dairying (Dairy Microbiology) • M.Sc. (Microbiology/ Microbial Technology/ Applied Microbiology / Medical Microbiology/ Industrial Microbiology/Microbial & Food Technology/Biotechnology/Food Science • M.Sc. (Ag). Microbiology • M.V.Sc. (Bacteriology/Microbiology) M.Sc./M.Tech. Food Safety and Quality Control M.Sc./M.Tech Food Safety and Quality Assurance • M.Sc. Hons. (Microbiology)
(2) Dairy Chemistry	<ul style="list-style-type: none"> • M.Sc. Dairying /M. Tech. Dairying (Dairy Chemistry / Quality Control/Dairy Technology) • M.Sc. Agric. (Dairy Sci./ Animal Husbandry & Dairying) • M.Sc. Chemistry/Applied Chemistry • M.Sc./M.Tech (Food Science / Food Technology/ Food Science & Technology)/Food Safety & Quality Assurance • M.V.Sc./M.Sc. Animal Biotechnology/Animal Biochemistry • M.V.Sc. (Animal Product Technology/Livestock Product Technology)
(3) Dairy Technology	<ul style="list-style-type: none"> • M.Sc. Dairying/M.Tech.,. Dairying (Dairy Technology/Dairy Engineering/Dairy Chemistry/Dairy Microbiology) with B. Tech./B.Sc. (Dairy Technology) • M.Sc./M.V.Sc. (Dairy Science/Dairy Technology) • M.Sc. (Food Sci. & Tech.) with undergraduate degree in Dairy Technology/Food Technology • M.Sc. (Food Science/Food Technology/Food Science & Technology) with undergraduate degree in Dairy Technology/Food Technology. • M.V.Sc. (LPT/APT)
(4) Dairy Engineering	<ul style="list-style-type: none"> • M.Tech. (Agril. / Agril. Process, Chemical, Dairy, Dairy & Food, Electrical,Mechanical, Post Harvest Engg.) • M.Sc./ M.Tech. Bio Process Engineering with Bachelor's Degree in Engineering except for B. Tech (DT)
(5) Animal Biochemistry	<ul style="list-style-type: none"> • M.Sc./M.V.Sc./M.Tech./M.Sc. Dairying/ M.V.Sc. Dairying in(Animal Biochemistry/ Animal Biotechnology/ Bio - Chemistry/ Biotechnology/Veterinary Biochemistry/Animal Physiology/ Dairy Bacteriology/ Dairy Microbiology// Microbiology/Dairy Chemistry/Biomedical Sciences/Molecular Biology & Biotechnology
(6) Animal Biotechnology	<ul style="list-style-type: none"> • M.Sc. Dairying/ M.V. Sc. Dairying in Animal Biotechnology/ Animal Genetics & Breeding/ Animal Biochemistry/ Animal Physiology/Microbiology/ Animal Nutrition • M.V.Sc. (Animal Biotechnology/ Animal Genetics & Breeding /Animal Biochemistry / Animal Physiology/ Microbiology /

- Animal Nutrition / Biotech / Biochemistry / Genetics / Molecular Biology & Biotechnology / Virology / Bacteriology/Livestock Production & Management)
 - M.Tech.(Dairy Tech.)
 - M.Sc./ Biotech./ Bio-Chemistry/ Microbiology/ Genetics/ Bioinformatics/ Medical Biotech/ Applied Microbiology & Biotech
 - M.V.Sc. & AH (Veterinary Biotechnology)
 - M.Tech. Biotechnology/Animal Biochemistry
 - M.Sc. Genomics

- (7) Animal Genetics and Breeding**
 - M.Sc. Dairying /M.V.Sc. Dairying Animal Genetics & Breeding/ Animal Breeding/ Dairy Husbandry/Livestock Production and Management
 - M.V.Sc. (Animal Breeding/ Animal Genetics & Breeding)/Animal Genetics
 - M.Sc. (Animal Breeding/ Animal Sciences/Animal Genetics/Animal Genetics & Breeding
 - M.Sc. Ag. (Animal Husbandry & Dairying)
 - M.Sc. Biotechnology/ Animal Biotechnology
 - M.V.Sc. (Animal Biotechnology)/ M.Sc. (Ag.) Animal Genetics & Breeding
 - Animal Reproduction, Gynaecology & Obstetrics

- (8) Livestock Production and Management**
 - M.Sc. (Dairying)/ M.V.Sc. (Dairying) Livestock Production & Management/Management Dairy Husbandry/ Animal Genetics & Breeding/Animal Nutrition/ Animal Physiology
 - M.V.Sc. Animal Sciences/ Livestock Production & Management/Animal Production/ Animal Genetics & Breeding/ Animal Breeding/Animal Nutrition/ Animal Physiology/ Animal Husbandry
 - M.Sc. (Ag.) Animal Husbandry/ M.Sc. (Ag.) with Specialization in AH & Dairying

- (9) Animal Nutrition**
 - M.Sc. Dairying/ M.V.Sc. Dairying (Animal Nutrition)
 - M.Sc. Animal Nutrition/ Animal Sciences/ Feed Technology/Biotechnology
 - M.Sc. Ag. (Animal Nutrition)
 - M.V.Sc. Animal Nutrition/ Feed Technology/ Biotechnology

- (10) Animal Physiology**
 - Master's Degree in Animal Physiology/ Animal Production & Physiology
 - M.Sc. Dairying/ M.V.Sc. Dairying (Dairy Husbandry)/ Animal Physiology
 - M.V.Sc. (Animal Physiology/ Physiology/ Veterinary Physiology/Animal Reproduction

- (11) Dairy Economics***
 - M.Sc. /M.V.Sc. Dairying (Dairy Economics)
 - M.Sc. /M.V.Sc. Livestock Economics
 - M.Sc. Agri. (Agricultural Economics)

- M.Sc. Animal Husbandry Economics
 - M.V. Sc. (Veterinary Economics)
 - M.Sc. / M.A. (Economics) with B.Sc./ B.A. Hons. (Economics with Mathematics at UG level)
 - M.Sc. (Agricultural Statistics) with Agricultural Economics as Minor
- (12) Dairy Extension****
- M.Sc. Dairying/ M.V.Sc. Dairying (Dairy Extension/ Dairy Extension Edn.)
 - M.Sc. Agri. (Agril. Extension/ Extension Edn./Agril. Extension Education) M.Sc. (Agril. Extension Education)
 - M.Sc. Home Science (Home Science Extension Education)
 - M.V.Sc. (Veterinary Extension/ Veterinary Extension Education/ VAH Extn.)
- (13) Agronomy (Forage Production)**
- Agronomy (Forage Production)
 - M.Sc. Agronomy (Forage Production)
 - M.Sc.(Ag.) Agronomy
 - M.Sc. Agronomy
- (14) Animal Reproduction, Gynecology and Obstetrics**
- M.V.Sc. in Veterinary Gynaecology and Obstetrics/M.V.Sc. in Animal Reproduction, Gynecology and Obstetrics
- (15) Food Safety & Quality Assurance**
- M.Sc./M.Tech. (Food Safety & Quality Assurance/Dairy Microbiology / Dairy Chemistry / Bio-science / Dairy Technology)
 - M.Sc. Food Science/Food Science & Nutrition
 - M.Sc. Hons. (Microbiology)/Industrial Microbiology/ Microbial Technology / Applied Microbiology
 - M.V.Sc. (Bacteriology/Microbiology/Public Health/LPT)
 - M.Sc. (Ag) Microbiology

Note :

- * Nomenclature of Degree in Dairy Economics will be M.Sc. Agricultural Economics/M. V. Sc. Livestock Economics for P.G. Programme & Ph. D. Agricultural Economics/Ph. D.Livestock Economics for Ph. D.Programme.
- ** Nomenclature of Degree in Dairy Extension will be M.Sc. Agriculture Extension Education/M. V. Sc. Veterinary Extension Education for P.G. Programme & Ph. D. Agriculture Extension Education/ Ph. D. Veterinary Extension Education for Ph. D. Programme.
- Based on the courses covered in Master's degree programme, remedial courses may be offered in addition to the regular courses.
- One who is appearing for above Master Degree Programmes in the year 2016 can also apply subject to he/she producing certificate of Master's Degree programme on or before 31st July 2016.
- The candidates with B.Sc. general qualification/Honours and three year degree programme at UG level will have to take, pre-requisite courses of one year and the duration of the programme will be 4 years. The candidates with Honours Qualification will have to offer additional courses.

4.0 PROCEDURE FOR APPLICATION

4.1 Ph.D. Programme

- (1) Application for admission shall be made in the prescribed form meant for the purpose.
- (2) The application form bears a serial number at the top left corner on page 1. This number, as well as the main subject to which the admission is sought, must be quoted in all correspondence regarding admission to this Institute.
- (3) All correspondence for admission should be addressed to the Academic Coordinator, National Dairy Research Institute, Karnal-132001 (Haryana). For all important dates please see important instructions on the back of cover page.
- (4) The application form and information bulletin can also be downloaded from NDRI Website: <http://www.ndri.res.in>. The completed form may be submitted to the Academic Coordinator, University Office, National Dairy Research Institute, Karnal-132001 along with the bank draft of Rs. 1200/- on or before 30th of March 2016. The Bank draft must be drawn in favour of "ICAR Unit, NDRI, Karnal" payable at Karnal.
- (5) In order to obtain acknowledgement for the receipt of the application by the Institute, candidates are advised to send their applications by registered/speed post.
- (6) Application for admission must be completed in block letters. All entries in the application form must be filled up and attested copies of the following certificates and documents (original certificate should not be sent with which the application is liable to be rejected).
 - a) Certificate for date of birth.
 - b) Certificates of all examinations passed starting from Matriculation to Bachelor's Degree.
 - c) Mark lists indicating percentage of marks in each subject, total marks and class obtained, etc. of all examinations passed.
- d) A certificate from the Principal/Dean of College indicating the marks/ division obtained at the Bachelor's Degree examination passed.
- e) In case of SC/ST and OBC candidate, a certificate as per annexure VII & VIII from a first class Magistrate of a District/ Competent Authority indicating that the candidate belongs to a particular category.
- f) Three recent passport size photographs duly attested should be affixed at appropriate place of the Application/ Admit Card.
- (7) All original certificates and marks sheet are to be produced at the time of registration/counseling. Candidates who do not produce all the original certificates and mark sheets will not be admitted.
- (8) If a candidate wilfully furnishes wrong information or suppresses any relevant information, his/her candidature/ admission will automatically stand cancelled.
- (9) Roll Nos and centre of examination of the eligible candidates will be displayed on NDRI website (www.ndri.res.in) on 05-06-2016. No despatch of admit card shall be made. Therefore, all candidates are advised to visit the NDRI website and note down the roll no. on their admit cards and bring it with them to appear in the examination.
- (10) Candidates are advised to retain a photocopy of the application form and bank draft for their personal record. It may be used at any time in support of having submitted application and also retain a copy of post office receipt for dispatch through registered post or speed post. Without these paper, a candidate shall not be allowed to appear in examination, in the absence of admit card.

5.0 ENTRANCE EXAMINATION & SELECTION PROCEDURE

5.1 Ph.D

- (1) The candidates who fulfil the minimum qualifications will be eligible to appear in the entrance examination. Name and Roll Nos. of eligible candidates will be displayed on NDRI Website. Those who are not found eligible, their names will be displayed separately. The entrance examination will be conducted at following centres:

- (a) NDRI, Karnal (Haryana)
- (b) Southern Regional Station, NDRI, Adugodi, Bangalore (Karnataka)
- (c) Eastern Regional Station, NDRI, Kalyani (West Bengal)
- (2) There will be only one paper based on subject matter of 2 hrs duration and of 150 marks. Paper will be objective type with multiple choice questions.
- (3) The syllabus of written examination for Ph.D. programme in each of fifteen disciplines has been appended in the information Bulletin as Annexure-I.
- (4) The qualifying marks for the written examination will be 75 (67.5 for SC/ST & PH category) Marks
- (5) The final selection for admission to Ph.D. will be based on merit list prepared on the basis of marks obtained in the Entrance Examination.
- (6) Only those students will be registered who will complete their qualifying examination in all respect latest before the commencement of academic session 2016-17 (i.e., 30-07-2016).
- (7) The result will be announced on 26.06.2016 and the merit list showing marks of qualified candidates will be displayed on NDRI website.
- (8) Information Bulletin will be available at NDRI website from 22-02-2016 to 16-03-2016.

6.0 COUNSELING PROCESS

(For admission to Ph.D. programme and wait listed candidates in B. Tech. (DT), Master degree and Ph.D. programmes)

6.1 The counselling will be held at NDRI, Karnal. The Candidate short listed as qualified for counseling based on the merit rank shall report for counseling as per the counseling schedule given on the back of cover page under "Directions to candidate and important dates" of the information Bulletin. Counseling will be offline for which candidates are advised to remain in touch with the NDRI website (www.ndri.res.in). The merit list showing the names of qualified candidate on the basis of written examination will be displayed on the NDRI website only. No separate intimation will be sent to candidates by letter or fax or any other means in this regard. The candidate shall forfeit the claim for admission if he/she, in person or through Authorized representative does not report for counseling. The candidates will mark their attendance on arrival and will be considered for counselling. Those reporting late will have to register arrival time as late entry in the attendance register and will be considered for counselling as per latest situation of seats available at that time. The seats already filled up will not be disturbed in such situation.

6.2 The candidates belonging to PH category will be called first and offered seat against the category to which they belong. The seats for PH category are 3% of overall seats in individual programmes i.e. B. Tech. (DT)/ Master and Doctoral Degree and will be filled within the overall number of total seats in each programme. In case of Master degree programme, if the number of PH candidates available is more than the number of reserved seats for PH category then 1) the admission will be restricted to one seat per group and 2) priority will be decided based on marks obtained in the qualifying examination as merit rank of different groups/disciplines cannot be used for deciding inter-group/interdisciplinary merit of candidates.

6.3 The candidates belonging to Under Privileged States (UPS) not having any State Agricultural/Veterinary University, will be called after the counselling of candidates belonging to PH category and offered seat against the category (i.e. SC/ ST/ OBC) to which they belong in the relevant programme. The seats for UPS category are 2% of overall seats in individual programmes i.e. B. Tech. (DT) and Master Degree and will be filled within the overall number of total seats in each programme. In case of Master degree programme, if the number of UPS

candidates available is more than the number of reserved seats for UPS then 1) the admission will be restricted to one seat per group and 2) priority will be decided based on marks obtained in the qualifying examination as merit rank of different disciplines cannot be used for deciding inter-group merit of candidates.

- 6.4 The candidates belonging to other reserved categories will be called in order



Felicitation of Dr. H.K. Bhanwala by Dr. A.K. Srivastava

of ST, SC and OBC after the admission of PH and UPS candidates is over. The seats in SC and ST categories are interchangeable and in case candidates of SC/ST categories are not available, the seats thus remaining vacant will be filled from general category.

Similarly, if the candidates from OBC category are not available, the same will be filled from general category.

- 6.5 The general category candidates will be called after the counseling of candidates of above categories is over. The reserved seats left vacant, if any and the vacant seats for unreserved category will be filled-up from the general category in the order of merit.
- 6.6 Candidates shortlisted as qualifying for counselling should bring, admit card, all original certificates with marks sheets, SC/ ST/ PH/ UPS/ OBC category certificate (Annexure-VI & VII) in original for verification and submission.
- 6.7 Immediately on offer of admission candidates are required to deposit counseling fee (Non refundable) Rs. 5000/- to Cashier, NDRI, Karnal
- 6.8 Candidates must appear in person at the time of counseling. In case a candidate is not in the position to present him/ herself, an authorized representative can attend the counseling on production of original certificates and authorization letter (Annexure-V).

7.0 In-service Candidates and their Selection Procedure

Vice-Chancellors/ Directors/ Head of the Institutions concerned may depute their faculty/ employees for admission to Doctoral Programmes subject to following conditions:

7.1 Ph.D.

- (i) The candidate must be fully sponsored by his/ her employer.
- (ii) The candidate must fulfil the eligibility conditions for admission to Ph.D. as indicated in para 3.1.3.
- (iii) The candidates should be in permanent employment under Central/ State/ Govt. or Universities and must have two years service as on 31 July, 2016.
- (iv) In-service candidates shall be admitted over and above the seats with the approval of the Director.
- (v) The Applications duly completed with all

documents should reach Academic Coordinator, NDRI Deemed University on or before the closing date. Direct application by the candidate will be accepted for the purpose of examination however the candidates must submit the application (including Form-A) through proper channel (forwarded by the Vice-Chancellor/ Director/Head of Institution) so as to reach the registrar office on or before counselling date.

- (vi) The eligible candidates will have to appear and qualify in the written examination.
- (vii) The admission of in-service candidates will be decided on merit obtained in the written examination.
- (viii) The applications of ineligible candidates shall be rejected

8.0 NUMBER OF SEATS

8.1 Ph.D.

Code	Discipline	UR	SC	ST	OBC	Total
1	Dairy Microbiology	3	1	1	2	7
2	Dairy Chemistry	2	1	1	2	6
3	Dairy Technology	3	1	1	2	7
4	Dairy Engineering	1	0	0	0	1
5	Animal Biochemistry	4	2	1	3	10
6	Animal Biotechnology	6	2	1	3	12
7	Animal Breeding & Genetics	3	2	1	3	9
8	Livestock Production & Management	3	2	0	3	8
9	Animal Nutrition	6	2	0	3	11
10	Animal Physiology	4	1	0	3	8
11	Dairy Economics	1	1	0	1	3
12	Dairy Extension Education	4	1	1	2	8
13	Agronomy (Forage Production)	1	1	1	1	4
14	Animal Reproduction, Gynecology and Obstetrics	1	1	1	1	4
15	Food Safety & Quality Assurance	2	0	0	0	2
Total		44	18	9	29	100

No. of seats for SRS, Bangalore Campus

1	Dairy Chemistry	1	0	0	0	1
2	Dairy Technology	2	0	0	1	3
3	Dairy Engineering	2	0	0	1	3
4	Animal Genetics & Breeding	1	0	0	1	2
5	Livestock Production & Management	2	0	0	1	3
6	Animal Nutrition	1	0	0	0	1
7	Dairy Economics	1	0	0	1	2
8	Dairy Extension	2	0	0	0	2
Total		12	0	0	5	17

For Eastern Campus at ERS, Kalyani

1	Animal Nutrition	3	1	0	0	4
2	Livestock Production Management	2	0	0	0	2
3	Animal Biotechnology	1	0	0	0	1
4	Animal Breeding & Genetics	1	0	0	0	1
Total		7	1	0	0	8

Total seats (Karnal+Bangalore+Kalyani) **63** **19** **9** **34** **125**

In-service candidates: one seat in each discipline over and above the above seats. (Vacant seat in one discipline may be transferred to other disciplines, without changing the total no. of seats for in-service candidates).

Foreign students: Over and above the above seats.

Reservation of Seats:

SC	-	15%,	-	11 seats
ST	-	7.5%,	-	7 seats
OBC	-	27%	-	23 seats
PH	-	3%	-	2 seats (*)
UPS	-	2%	-	1 seat (*)

(*) The seats will be provided to the candidates against the category i.e. (General/SC/ST/OBC) to which they belong.

Note:

- The Ph.D. students selected against SRS, Bangalore seats will complete their course work at NDRI, Karnal Campus and the thesis work at SRS, Bangalore except Dairy Engineering and Livestock Production & Management students who will undergo the course and thesis work at SRS, Bangalore. The Ph.D. students selected against NDRI, Karnal seat in Dairy Engineering will also complete Course work at SRS, Bangalore. The Ph.D. students selected against ERS, Kalyani seat will also complete their course work at NDRI, Karnal campus except Animal Nutrition and Livestock Production & Management students will undergo the course and thesis work at ERS, Kalyani.

9.0 RESERVATION

- 9.1 15% of total seats are reserved for bonafide candidates belonging to Scheduled Castes, 7.5% for Scheduled Tribes, 27% seats for OBC, 3% for Physically Handicapped subject to their being otherwise eligible. The reservation of seats is interchangeable amongst the SC/ST candidates depending upon the availability of such candidates. In case candidates from Reserved Categories are not available, the same will be filled up from General Categories.
- 9.2 2% Seats under UG and PG programmes would be reserved for the candidates of the remote and Under Privileged States/ Union Territories (UT/ UPS) namely Andaman and Nicobar Islands, Arunachal Pradesh, Dadra and Nagar Haveli, Daman & Diu, Goa, Lakshdeep, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura where educational facilities in Agriculture and Allied Science subjects do not exist. However, these seats will be filled by merit amongst the qualified candidates from the State concerned those who qualify this examination. In case no qualified candidates are available in these categories, the vacant seats will be filled from general merit. Candidates from UPS



Dr. K.K. Iya Memorial Oration by Dr. Nagendra Shah

will have to produce domicile certificate issued by the competent Authority at the time of counselling.

- 9.3 Definition for Physical Handicapped Candidates having permanent disability of not less than 40%, provided the candidate is otherwise fit for admission. Such candidates will have to bring a certificate from a Govt. Hospital/Medical Board (duly attested by a Gazetted Officer) of the District to which the candidates belongs for verification at the time of counseling.
- Such candidates will also have to appear before the Medical Board constituted by the Director for determining the percentage of disability and for assessment whether they are fit to carry out the studies despite being handicapped.

10.0 AGE LIMIT

Minimum age limit for B.Tech. / Master's and Doctoral candidates shall be 17, 19 and 21 years on or before 31-07-2016. Normally there will be no upper age limit (except B.Tech. students whose maximum age limit is 23 years). No relaxation is admissible regarding the minimum age limit.

11.0 FOREIGNER STUDENTS

- 11.1 Foreign students seeking admission at this Institute shall have to submit their applications through their respective Embassies at New Delhi or the respective

Indian Missions in their countries to the Govt. of India, Department of Agricultural Research and Education, Krishi Bhavan, New Delhi-110001 and the candidature of

foreign students shall be considered if they are sponsored with financial support by:-

- (a) Their respective Governments or
- (b) The Government of India.

- 11.2 Self supported foreign students can apply through Educational Consultants India Limited (Ed.CIL) using the following contact details.

Head (Placement & Secondment)
Educational Consultants India Limited
Educational Consultants India Limited
House, 18-A, Sector-16A, Noida-201301.

Phones: 0091-120 -2515281; 0091-120 -2512001-06

Fax: 0091-120-2515372

Email: placement@edcil.co.in

- 11.3 The foreign candidates should have qualifications required for admission as given under clause 3.3.4 for Master degree programme and 3.4.3 for Doctoral degree programmes or equivalent. However, the percentage of marks will not be applicable. They should possess the requisite qualification in the concerned discipline and its cognate branches. The bio-data of foreign students will be examined by the respective Heads of Divisions for deciding the eligibility for admission in particular discipline.

- 11.4 A good knowledge of English is essential. A certificate of the candidate's proficiency in English, issued by the respective Indian Mission abroad, should accompany their application for admission. Candidates

must carry a proper visa for the entire duration of the course. They should ensure that they get the correct visa from the Indian Embassy/High commission in their country. Govt. of India guidelines stipulate that if a fellow arrives without proper visa and his/her actual admission at the University/Institute does not materialize, he/she will be deported to his/her country.

- 11.5 All the foreign students other than those sponsored by the Government of India with suitable fellowship such as ITEC Program, ICCR, General Cultural Scholarship and Cultural Technical Exchange will be charged Institutional Economic Fee @ US \$ 400/- p.m. or US \$ 4000/- p.a. This fee will be over and above other usual charges and fees of the University as applicable to Indian nationals.

- 11.6 The foreign students may apply for admission under different fellowship programmes as per the time schedule given in the advertisement issued by the council/ICAR.

- 11.7 As per directive from the Govt. of India, Ministry of Health, New Delhi, health check for foreign students including that for AIDS is mandatory. Foreign students will subject themselves for health check within one month of arrival and till the results are known the students will be admitted provisionally. Their admission is to be confirmed on production of fitness certificate from the competent authority.

12.0 INSTITUTE SCHOLARSHIPS

- 12.1 Scholarships will be offered to assist the meritorious B.Tech. (Dairy Technology) students. This provision will be utilized to assist as many students as possible who have good academic record and are

making diligent efforts to pursue higher education. The National Talent Scholarship (NTS) @ Rs. 1000/- per month shall be awarded by Indian Council of Agricultural Research (ICAR) on merit

- provided that the domicile of the candidate is other than Haryana State.
- 12.2 Institute Scholarship at the rate of Rs. 7,560/- per month is offered to the entire Master's students and Rs. 13,125/- per months to all the Ph.D students of Indian Nationality. Scholarship is offered to only those who do not receive any Financial Assistance/ Scholarship/ Fellowship from any other source. These scholarships will be governed by Scholarship Rules of the Institute. The students are required to submit a surety bond of Rs. 30,000/- for Master's Programme and Rs. 50,000/- for Ph.D in Dairying, on non-judicial stamp papers as appended in the information bulletin (Annexure-I) from a permanent ICAR/Central/State Govt. employee as a precondition for release of the scholarship/ fellowship. The in-service candidates under ICAR/SAU set up are eligible for the award of Institute Scholarship @ Rs.1000/- per month subject to fulfilment of conditions prescribed by ICAR.
- 12.3 The student who resumes their Ph.D. Programme to complete their remaining work without salary after physical exemption will be granted Institute Scholarship at full rate i.e. Rs. 13,125/- per month along with contingency grant for the remaining sanction tenure of fellowship.
- 12.4 In order to protect intellectual property, the students admitted to Master and Doctoral programmes at NDRI are required to submit the Secrecy Agreement in the prescribed format as appended in the information bulletin (Annexure-III).

13.0 AWARD OF MEDALS, BEST THESIS & MERIT CERTIFICATES

13.1 B. Tech. (Dairy Technology)

B. Tech.(DT) students will be awarded three Medals: i.e Gold , Silver and Bronze medal for obtaining 1st, 2nd and 3rd positions for overall performance in course work as per eligibility criteria. The Merit certificates upto 20% of the total pass out students will be awarded to B. Tech.(DT) students who secure at least 75% marks and completed all the courses prescribed for the degree successfully in the first attempt.

13.2 Master's Degree & Ph.D. Degree

Master and doctoral degree students will be awarded Gold, Silver and Bronze medals for obtaining 1st, 2nd and 3rd positions for overall performance in course work as per eligibility criteria. The Merit certificate to topper of each

discipline in Master's and doctoral degree programme will be awarded who secure at least 75% marks and completed all the courses prescribed for the degree successfully in the first attempt. Doctoral degree students will also be awarded Gold Medals for best thesis research work in Production, Processing and Management Groups separately as per eligibility criteria. The thesis award will carry a certificate and a cash prize of Rs. 5000/- for best master's thesis each in production, Processing & Management groups. In case a student has been punished for act of indiscipline during the course of study at NDRI, he/ she may be debarred from the award of Director's Gold Medal/ Merit Certificate.

14.0 SYLLABUS

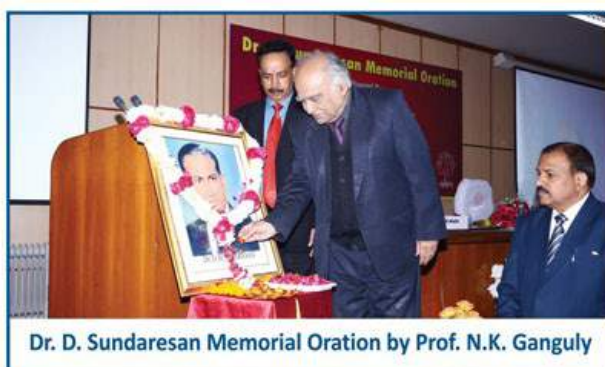
- 14.1 The Syllabus for various courses, programmes, pre-requisite courses and rules for carrying out the research and submission of thesis are governed by the regulations of the Institute and as modified by it from time to time.
- 14.2 The Ph.D. students have to complete their course work essentially at NDRI, Karnal/ SRS Bangalore. However, they may be

required to complete their research work at Southern Regional Station of NDRI at Bangalore or Eastern Regional Station of NDRI at Kalyani and any other ICAR Institutes depending on the facilities available. The decision of the Director, NDRI regarding placement for research will be final and binding on all the candidates admitted.

15.0 EXTRA CURRICULAR ACTIVITIES

- 15.1 Students are encouraged to participate in activities such as music, Art & Dramatics, Hobbies, Literary Activities, Declamation & Debate Contests, Paper Reading and Recitation Contests etc.
- 15.2 Excellent facilities are available for indoor and outdoor games, sports etc. and students are required to take part in sports activities.
- 15.3 Students are also encouraged to participate in Basic/Advanced Youth Leadership Camps, Hiking and Trekking activities, Youth Festivals/ Games and

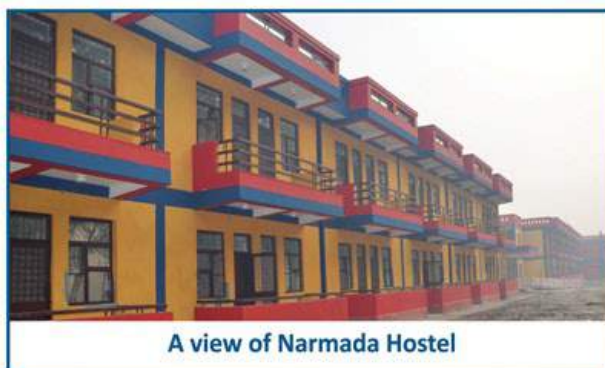
Sports etc. organised by this Institute and other Organizations.



Dr. D. Sundaresan Memorial Oration by Prof. N.K. Ganguly

16.0 HOSTELS

- 16.1 Adequate hostel accommodation is available with all modern facilities in terms of well furnished rooms, sports, indoor games, TV Rooms, Reading Rooms, Hobby Centre, Cultural Activities etc. A number of messes with modern cooking provisions are available for boarding requirements of the hostel residents. A cafeteria is also available for refreshments. In all, there are seven hostels in the Institute providing accommodation for over 800 students. B.Tech. students are accommodated in Brahmaputra Hostel, Master's in Satluj Hostel and Doctoral students in Krishna Hostel, Narmada Hostels, respectively. There are two separate hostel accommodations for Girl Students known



A view of Narmada Hostel

as Kaveri Girls Hostel and Alaknanda Sadan. A limited accommodation in Married Scholar Hostel is available for married Ph.D. scholars provided the scholar resides with his/her spouse. An International Hostel is also available for

the students coming from abroad with their spouse.

In order to regulate community living harmoniously in the Hostels, certain rules have been framed for the guidance of the students. These rules are meant for the students to maintain a high order of discipline, honesty and moral conduct for self and fellow hostellers. Students admitted in this Institute are all meritorious. They are supposed to lead a career oriented living in the hostels. While in the hostel they are responsible for up keep and look after of rooms, furnishing and fixtures. They are also supposed to conduct extremely well within and outside the Hostels. Payment of fees and dues, proper use of hostel facilities, common room and mess regulations regarding hostel visiting hours are some of the important points that have to be adhered to by the hostellers.

- 16.2 Students seeking admission to the hostel must apply separately at the beginning of each semester /year in the prescribed



13th Convocation of ICAR-NDRI Deemed University

form.

- 16.3 Students admitted to the hostel shall abide by the decision of the Chief Hostel Warden with respect to the enforcement of Hostel Rules. Copy of the Hostel Rules will be provided to each hosteller at the time of admission. Those infringing the Hostel Rules are liable to be expelled from the hostels. The decision of the Chief Hostel Warden/Joint Director shall be final.
- 16.4 In view of the limited availability of hostel seats, accommodation will be on the basis of merit in entrance examination.

17.0 HEALTH CARE

The Health Complex is a 20-bedded hospital offering the services of practitioners of Allopathic, Ayurvedic and Homeopathy fields of medicine. The complex offers diagnostic investigative laboratory, radiological (X-ray) and ECG facilities. There is a full-fledged dispensing provision for common ailments to the students of NDRI Deemed University as well as the staff of Institute. The Student will have to take a group health insurance policy every year. The Institute will facilitate the students in arranging the insurance policy.

18.0 RIGHT TO REFUSE ADMISSION

The Director reserves the right to refuse admission of any candidate even though he/she may fulfil the academic requirements of admission on the basis of criteria laid down in the regulations, and/or may otherwise be eligible for admission on the basis of entrance examination without assigning any reason thereof. The decision of the Director shall be final and legally binding.

19.0 REGISTRATION

- 19.1 Students must report for registration on the due date mentioned in the admission letter/ e-mail or the information displayed on NDRI website, failing which offer for admission is liable to be withdrawn automatically.
- 19.2 At the time of registration, the students must produce the following documents:-
- a) Original certificates and mark sheets of all

- the examinations passed from High School or its equivalent.
- b) In case of SC/ ST candidate, a certificate from a first class Magistrate of a District/Competent Authority indicating that the candidate belongs to a particular SC/ ST category which is included in the latest list appended to the constitution of India, SC/ ST 1950 and PH Certificate from a Govt. Hospital/Medical Board (duly attested by a Gazetted Officer) for verification.
- c) Three passport size photographs (which should not be more than 6 months old) for the preparation of ID card/ Hostel Forms.
- 19.3 The students and the parents will have to submit affidavits as per UGC guidelines not to indulge in ragging or other related activities.

20.0 RAGGING

Ragging in any form is totally banned. As per directives from Hon'ble Supreme Court of India, if any incident of ragging comes to the notice of the authority, the concern student shall be given liberty to explain and if his explanation is not found satisfactory, the authority would expel him from the institute.

21.0 CLASS ATTENDANCE

Students are expected to attend all the theory and practical classes. The regulations require that the students must maintain prescribed minimum attendance of 75% in the classes separately for theory & practical in each course.

22.0 RULES FOR FINES

- 22.1 **Fines for absence from the Hostel**
A special fine considered adequate according to the seriousness of the case will be levied by the Chief Hostel Warden / Joint Director for overnight absence from the Hostel without prior permission of the competent authority.
- 22.2 Such students who do not clear mess charges by the due date may result in not only pay heavy penalty but also will be removed from the hostel and disciplinary action as deemed fit will be taken.
- 22.3 Fine recovered from the students towards late payment of fees, fines for act of indiscipline etc., will be credited to "R" Deposit.

23.0 SUMMARY CANCELLATION OF REGISTRATION

- 23.1 The Director may summarily cancel the registration of any student or group / batch/class of students who indulge(s) in act(s) of indiscipline, misconduct, violation of rules and regulations of the Institute, strikes, absence from classes without permission or without any valid reason or in whose case, the Director has reasons to believe that their continuance in the Institute would not be in the best interest of the Institute.



Dr. A.K. Srivastava, Director, NDRI addressing foreign delegates

- 23.2 The students who have been permanently dropped from the Institute either on account of poor academic performance or on account of acts of indiscipline, shall not be eligible to make an application for re-admission.
- 23.3 It is the responsibility of the candidates to furnish full and correct information on the

application form. Any admission made on the basis of wrong information supplied by the candidates or through a clerical mistake in the University Office and detected subsequent to the admission and joining of the candidate, would be cancelled at the cost and risk of the student.

24.0 GENERAL INFORMATION

- 24.1 The selected candidates should join the course by the date indicated in the admission letter/e-mail or as displayed on the website.
- 24.2 The admission of a candidate who fails to join the course by the stipulated date will stand cancelled automatically.
- 24.3 Candidates coming from universities other than this institute should produce Migration Certificate from the university from which they have obtained the eligible qualification within three months of commencement of session.
- 24.4 Once the admissions are finalized for an academic session, there will be no scope for lateral entry via transfer from any other Institutes to the NDRI.
- 24.5 The Institute reserves the right of admission and also the right to cancel the admission of a candidate at any stage if it is found that the information furnished by the candidate in his/her application is not true or is incomplete.
- 24.6 While every care is taken to shortlist the eligible candidates for the Entrance Examination and admit only those who have qualified, it is the responsibility of the candidate to fully ensure his/her eligibility. NDRI will not be responsible for inadvertently calling the candidates for the Entrance Examination or in granting them admission. Candidates in their own interest should ensure that the degree of the university from where they have passed the qualifying examination is recognised by the Institute.



Swachh Bharat Abhiyan by NDRI Students

- 24.7 Admission to the Institute implies acceptance by the student and his/her parents/guardian of all provisions given in the bulletin and/or change in the Institute Rules, Regulation, Fee etc. that are made from time to time.
- 24.8 The information indicated in the Information Bulletin is only for general guidance and could be modified/ changed from time to time by the Institute. The Information Bulletin shall not be treated as a legal document.
- 24.9 The result of the Entrance Examination declared by the Institute shall be treated as final. There is no provision for scrutiny of answer books.
- 24.10 In case of any legal dispute, the same shall be subject to KARNAL courts jurisdiction only.
- 24.11 The candidates from allied subjects will be required to take remedial courses which will be prescribed on the basis of courses studied for the qualifying degree and background.

25.0 FEES

All fees (see Table below) must be paid on the due date in each Semester. Fees cannot be adjusted against stipends/scholarship. Non-receipt of scholarship etc. will not be considered as a valid reason for late payment of fees. Fees and annual dues once paid will not be refunded to the students leaving the course for any reason what-so-ever.

Sr. No.	Description of fee	Doctoral Programme
1	Caution Money	10000.00
2	Registration Fee (Per annum)	500.00
3	Tuition Fee, per annum (To be paid in two installments semester wise)	12000.00
4	Continuation fee (per semester to be paid by students who are on physical exemption)	2000.00

Hostel Charges		
5	Students Hostel Fee (i) Hostel Fee, per annum	5000.00
6	Married Hostel Fee (i) Hostel Fee, per annum (ii) Electricity & Water charges	12000.00 Actual
7	International Hostel fee (i) Hostel Fee per annum (ii) Electricity & Water charges	24000.00 Actual
8	Charges for Guest Room in hostel The hostel charges for students/students guests for short stay were recommended as Rs.50/- per day. The permission to stay in hostel may be allowed by the authorities as under: (i) Upto 3 days-Hostel Warden of the concerned hostel (ii) Upto 7 days by the Chief Hostel Warden (iii) Beyond 7 days by the Joint Director (Academic)	
Annual Payments		
9	Students Council Fee	500.00
10	Magazine Fee	250.00
11	Welfare Fund	500.00
12	Sports Fund	250.00
13	Cultural and Literary Activities Fee	250.00
14	Examination Fee (per annum)	1000.00
15	Thesis Evaluation Fee	2000.00
16	Identity Card fee	100.00
Other Charges		
17	*Provisional Degree Certificate	250.00
18	Duplicate Degree	1000.00
19	Award of Degree in Absentia	1000.00
20	Late Registration Fine	500.00
21	*Alumni Association	1000.00
22	Migration Certificate	100.00
23	Convocation fee	500.00

- (i) Fee at * marked will be charged in the 2nd year 1st Semester at the time of Registration along with above fee.
- (ii) Caution money will not be refunded to the candidates if they leave the course after the closing of admission and without completing their degree. If the seat vacated by a candidate is filled up from the waiting list, the caution money will be refunded in full.
- (iii) The Fees will be charged by the University/ICAR time to time and will be paid on the due date in each semester. The student will have to pay revised fee if any with the increase in the fellowship amount.

Note :

- a) In-service candidates shall also be required to pay all the fees as applicable in the case of other candidates.
- b) The Institute shall reserve the right to recover any kind of dues from the fellowship amount or any other amount payable to the students.
- c) Unless specially permitted by the Joint Director(A)/Director, the name of the defaulter shall stand struck off from the rolls if he/she does not report for registration within a period of two weeks from the date of commencement of the respective semester. He/She may, however, be re-admitted at the discretion of the Joint Director(A)/Director on the submission of an application through the Head of Division and on payment of re-admission fee at the prescribed rate and also the fine.
- d) The fee and other charges once paid are not refundable. However, the caution money will be refundable only to the passed out students, if claimed within one year of completion of the course. Caution money will not be refunded if the seat-vacated by the student remains vacant.
- e) The members of Alumni Association admitted to the higher course will pay the difference, if any.
- f) No migration will be required from students passing qualifying examination from NDRI Deemed University.

26.0 ACADEMIC CALENDER

2016-2017 Session

2016		FIRST SEMESTER	
August	1st	Registration and payment of fees	(for fresh students)
	3rd	-do-	(for existing students)
	3rd	Orientation programme for freshers	
	4th	Classes begin	
December	1st	Last working day	
	7th	Examinations begin (Tentative)	
2017		SECOND SEMESTER	
January	11th	Registration and payment of fees	
	12th	Classes begin	
May	17th	Last working day	
May	25th	Examinations begin (Tentative)	

27.0 SYLLABUS FOR ENTRANCE EXAMINATION FOR PH.D.

1. DAIRY MICROBIOLOGY

Historical background; Nature of microorganisms: prokaryotic and eukaryotic microorganisms, taxonomy, morphology and ultra structure of microorganisms: bacteria, Rickettsiae, Viruses and Fungi; physiology of growth; microbial enzymes; principles of bacterial genetics, genetic recombination in bacteria, genetics of bacteriophages; rDNA technology; Principles of immunology, Acquired and innate immunity, Hybridoma technology; Principles and methods of industrial fermentation processes; spoilage of food; food poisoning; food-borne pathogenic bacteria; microbial toxins; diseases transmitted through milk and their preventive measures; enteropathogenic and enterotoxigenic microorganisms in dairy products and their public health significance; Microbiological changes during production, handling, packaging, storage and transport of fluid milks; spoilage of milk by psychrotrophic and thermophilic microbes, microbiology of heat treated milks; principles of pasteurization, sterilization, bacteriostasis and packaging of milks; microbiology of cream, butter, dried and reconstituted/ recombined milks, evaporated and sweetened condensed milk and indigenous milk products; Lactic Acid Bacteria (LAB); Genetics and plasmid biology of LAB; Bacteriocins and other microbial metabolites of LAB, Starter cultures and cultured milk products, Bacteriophages of lactic acid bacteria, inhibition of starter cultures by bacteriophages and antibiotic residues; Inherent inhibitory substances and antimicrobial agents of milk; Probiotic

health foods and nutraceuticals; Microbial rennet and Recombinant rennet, microbiology of cheese and whey utilization; microbiology of frozen dairy products; by products, new products innovations; antimicrobial packaging; cleaning and sanitization in dairy industry; Treatment and disposal of dairy effluents; principles of microbiological Biosensors; Quality Control tests; principles of quality management, food safety and biosafety; National and International regulatory standards, guidelines and specifications; Environmental microbiology: microbiology of air water, soil silage and rumen; Xenobiotics and Bioremediation.

2. DAIRY CHEMISTRY

Definition, composition and level of various constituents of milk. Physical properties of milk. Chemistry of major milk constituents-carbohydrates; proteins, enzymes, lipids, vitamins and salts. Effect of various processing variables on the constituents of milk. Chemistry of milk products. Composition and legal standards of milk and milk products.

Reaction Kinetics, Role of enzymes as a biological catalysts. Concept of activation energy, buffers. Adsorption at solid-vapour, Solid-liquid & liquid-liquid interface. Gibbs equation, micelles; formation and stability. Water activity and its role on shelf-life of milk products. Chemistry of oxygen in relation to autooxidation of milk fat, thermal oxidation, chemical and biological properties of heated and oxidized fats, Significance of milk lipids in human health. Emulsions, foams, Gels- their formation, structure and stability. Functional properties of major food ingredients- starch, proteins and lipids. Mutual

interactions of hydrocolloids and interactions with proteins and lipids, legal requirements for food colourants. Principles, theory and applications of spectroscopy-visible, infra-red and Ultraviolet. Chromatography-thin-layer, gas liquid, High performance liquid chromatography (HPLC), gel filtration, ion exchange and affinity. Electrophoresis (PAGE, SDS-PAGE); Iso-electric focusing, Radio-Isotope techniques, Ultra-centrifugation, Potentiometry – pH meter and Ion selective electrodes.

3. DAIRY TECHNOLOGY

Recent advances in dairy industry, unit processes used in the dairy/ food industry, chemical preservation of raw milk, Hurdle Technology, HACCP, Good Manufacturing Practices (GMP), freeze drying, UHT processing, condensing and drying, newer concepts in milk processing, membrane technology, microencapsulation. Recent developments in the manufacture of cheeses, fermented milk products, fat rich dairy products, formulated foods, dairy analogues, byproduct utilization. Physico-chemical and sensory alterations during processing and storage of milk and milk products. Additives, stabilizers, emulsifiers, acidulant, antioxidants, flavouring compounds and texture improver. Rheology and structure of dairy and food products (foam, gels, emulsions). Different types of packaging materials, forms and testing of packaging material, modified atmosphere packaging, aseptic packaging, bio-degradable and edible packages, methods of disposal of used packages, migration of toxic materials from packages to the products, packaging of beverages, labelling and coding on packages. Technology for production, preservation and packaging of foods, extrusion processing, bakery and confectionary products. Bio-processing aids such as microbial rennets, ripening

enzymes, starter cultures, bio-preservation, bio-additives etc. Recent developments in the production, packaging and shelf life extension of heat desiccated and heat & acid coagulated traditional dairy products and sweets. Cleaning and sanitization of dairy & food processing equipments.

4. DAIRY ENGINEERING

Thermodynamics: Basic concepts, laws of thermodynamics, vapour and gas power cycles. Refrigeration & cold storages. Dimensional analysis, fluid statics and its application, fluid flow phenomena, basic equations of fluid flow, flow of incompressible fluids through conduits, rheology of foods, principles of heat flow in fluid, heat transfer to fluids without phase change and with phase change, temperature distribution in laminar and turbulent flow heat exchangers-design mass transport-diffusivity and mechanism of mass transport, distribution in solids and laminar flow.

Unit Operations: Agitation and mixing, classification of mixtures, flow patterns in agitated vessel, power consumption in agitation, different methods of mechanical separation membrane separation process-reverse osmosis, ultrafiltration. Homogenization principle and theory, efficiency, maintenance and power consumption. Design of food processing equipments- calculation of time temperature combination, cleaning systems and 3-A sanitary standards. Pasteurization, design of equipment, efficiency, energy requirements, instrumentation and controls, operation and maintenance, sterilization principles, evaporation, heat economization system, multiple effect evaporation, vapour recompression, principles of drying, psychrometry and its application, mechanisms of drying, drying rate periods. Types of dryers, properties of

frozen foods, freezing point depression, prediction of freezing rate and tonnage requirements, freezing equipment, batch and continuous principles of Biothermal process engineering. Methods of effluent disposal, performance and analysis. Instruments for indicating, measuring, controlling of various process parameters.

5. **ANIMAL BIOCHEMISTRY**

Importance of biochemistry; Cell structure and function; Chemistry, structure and biological importance of carbohydrates, lipids, amino acids, proteins and nucleotides, protein sequencing.

Enzymes: chemistry, kinetics, mechanism of action, metabolic inhibition and regulation; Enzyme immobilization, industrial applications of enzymes; Energy

Metabolism: Bioenergetics and biological oxidation, Glycolysis, gluconeogenesis, pentose phosphate pathway, glycogen metabolism, citric acid cycle, oxidative phosphorylation, glyoxylate cycle, fatty acid metabolism, lipid biosynthesis, metabolism of amino acids and nucleotides integration of metabolisms; Fundamental principles of nutrition, nutritional requirements, balanced diet, nutritive value of foods, importance of dietary fiber, assessment of protein quality, deficiency diseases and metabolic disorders; diabetes, food toxins; Vitamins; chemistry and metabolic role of vitamins, vitamins and antioxidants.

Hormones: Biosynthesis and mechanism of action of steroid and peptide hormones; Growth factors and their role; chemistry of antigen and antibody, molecular basis of immune reaction, hybridoma technology; DNA replication, transcription and translation; RNA splicing; Genetic code; Mutation: types and induction of mutation, DNA repair, physical and chemical mutagens; Regulation of gene expression in

prokaryotes and eukaryotes.

Gene transfer: transduction, transformation, conjugation, protoplast fusion.

Recombinant DNA technology: DNA sequencing, vectors, plasmids, expression vectors.

Chromatography: partition, ion-exchanges, adsorption and affinity, TLC, HPTLC, HPLC, Gel Filtration and GLC.

Electrophoresis: PAGE, SDG PAGE, agarose gel electrophoresis and isoelectrofocusing; Blotting techniques; Electrophoresis, Northern, Southern and Western blotting;

Radiotracer techniques: beta and gamma emitters and their detection, solid and liquid counting, autoradiography and phosphor image analysis, isotope dilution technique; Binding assays: RIA and ELISA;

Spectroscopy: UV-visible, fluorescence, ORD, CD, NMR, ESR and Mass; RT-PCR.

6. **ANIMAL BIOTECHNOLOGY**

Basic cell structure: Cellular organelles – structure and function. Chromatin structure. Molecular aspects of cell division and cell cycle. Cellular regulation, development and differentiation.

DNA as the genetic material: Gene as the unit of mutation and recombination. Identification of Structure of DNA and RNA. DNA replication, kinetics, repair and gene amplification. Transcription and processing of RNA. Control of transcription and translation. Recombination – control: models and mechanisms. Gene as the unit of expression. Colinearity of gene and polypeptide. Regulation of gene expression. The operon concept – positive and negative control, attenuation control, control sequences: promoter, operator, terminator and attenuator.

Genetics of prokaryotes : transformation,

transduction and conjugal gene transfer. Extrachromosomal heredity; Biology of plasmids – discovery, types and structure of F, RIF, co-factors. Replication and partitioning. Plasmid vectors of various types. Biology of bacteriophages – Lambda, P1 and M13. In vitro construction of Bacteriophage vectors. Phages as in vivo vectors. Cosmid vectors and their applications. Specialized vectors – expression vectors, promoter probe vectors, gene fusion vectors. Biology of Yeast vectors and applications. Genetics of eukaryotes: Gene linkage and chromosome mapping, crossing over, three point cross, tetrad analysis. Complementation. Organization of chromosomes, specialized chromosomes. Chromosome abnormalities, quantitative inheritance, population genetics. Somatic cell genetics. Organization of Eukaryotic genome : unique and repeat sequences. DNA fingerprinting, RFLP and marker assisted selection. Techniques in gene manipulation: cutting and joining DNA, introduction of DNA into cells. Cloning strategies, construction of genomic libraries and cDNA libraries. Probe construction, recombinant selection and screening. Analysis of gene expression. Analysis of recombinant DNA, sequencing, mutagenesis, altered expression. PCR and analysis of amplified products. Applications of PCR.

Animal tissue culture : preparation of primary culture, maintenance of secondary culture and evaluation of culture dynamics. Cell synchronization – preservation and revival of cells. Hybridoma technology and monoclonal antibody production. History and scope of Immunology : Types of immunity – innate, acquired, passive and active. Physiology of immune response – MI and CMI specificity and memory. Antigen-antibody reactions. Antigens – types – Hapten,

immunoglobulins – structure, distribution and function. Cellular interactions in immune response. Enzyme engineering : Enzyme nomenclature and classification. General properties of enzymes like effect of pH, temperature, ions etc. Extraction, assay and purification of enzymes. Enzyme inhibitors. Mechanism of enzyme action e.g. Lysozyme, chymotrypsin, DNA polymerase, RNase, etc. Zymogens and enzyme activation. Clinical and industrial applications of enzymes. Immobilization of enzymes and their applications.

Bioinformatics, IPR and Biosafety issues: Use of databases in biology sequence databases, structural databases, Sequence Analysis – protein and nucleic acids, Structural comparisons, genome projects. WTO-GATT & TRIPS.

Application of biotechnology in Livestock production, agriculture, dairying, food, medicine, environment & pollution control, animal biotechnology: embryo transfer technology, transgenic animal production and cloning.

7.

ANIMAL GENETICS AND BREEDING

Cell structure and function. Mitosis and meiosis. Laws of inheritance, gene interaction, multiple alleles and multiple factors. Maternal effects and cytoplasmic inheritance. Chromosomal theory of inheritance. Sex determination, linkage and crossing over. Mutation-its induction and significance. Chromosome structure and organization, chromosomal aberrations, karyotyping. Structure, replication, transcription and translation of DNA. Blood groups of man and farm animals. Eukaryotic genome organization. Genetic markers and DNA polymorphism, Recombinant DNA technology and its application. Gene mapping in farm animals. Concept of quantitative trait loci and Marker Assisted Selection. Major histocompatibility complexes and their

significance in farm animals. Molecular and reproductive biotechniques and their application in Animal Improvement.

Breeds of livestock and poultry Population and performances statistics of livestock and poultry and conservation of animal genetic resources. Variance and its analysis. Genetic and non-genetic components of variance. Genotypic-environmental interaction. Heritability, repeatability, genetic and environmental correlations. Gene and genotypic frequencies; Hardy Weinberg Law; forces changing gene frequency. Theory of path coefficients and its application. Linear models-concept and application in Animal Improvement Programme. Effective population size, genetic load. Basis of selection, individual, pedigree family and progeny performance, combined selection, sire evaluation, Different methods of selection, selection index, selection intensity, response to selection, correlated response. Threshold characters. Systems of breeding; inbreeding and out-breeding; cross-breeding-its impact. General and specific combining ability, heterosis, diallel crossing. Recurrent and reciprocal Recurrent selection. Breeding plans and schemes of livestock improvement.

8. LIVESTOCK PRODUCTION & MANAGEMENT

Scientific herd management practices for farm animals, rearing of neonates and young calves, principles of heifer and bull management and strategies for attaining early maturity; management during advanced gestation, at calving and during different stages of lactation. Animal behaviour and application of behavioural principles in animal management and welfare. Abnormal behaviour; its causes and control. Mechanization in farm animal production and management. Breeds of cattle, buffalo, goat, sheep, camel, swine,

equine and poultry. Recent approaches in breeding farm animals for augmenting productivity and health. Breeding policy for different regions of the country. Artificial Insemination and advances in animal reproduction. Biotechnology and its applications in farm animal production. Milk synthesis, initiation and maintenance of lactation. Recent advances in augmenting milk productivity of dairy cattle and buffaloes. Milking management, principles of clean and hygienic milk production. Nutrient requirement of farm animals. Fodder production and conservation; Ration formulation. Maintenance of animal farm records, preparation of feasibility reports on dairy/mixed farming units of different herd/flock sizes.

Environment and its effects on animal productivity. Housing management of different classes of farm animals in relation to types and systems of housing, design of shelters, layout plans, drainage and sewage disposal. B.I.S. standards for animal housing. Common disinfectants and sanitizers used on farm premises. Advances in biogas technology.

General approaches to planned animal health programmes. Mastitis, major metabolic and reproductive disorders their prevention and control. Specific diseases of neonates and their control. Epidemiology of bacterial and viral diseases, mass immunoprophylactic measures, segregation and quarantine. Application of computers in Animal Production. Economic importance of farm animals and their contribution to national economy. Population and distribution of cattle, buffaloes, sheep and goat, camel, equine, swine and poultry species in India. Various livestock development programmes and their impact. Animal marketing and insurance. Scope of livestock farming for improving economic

and nutritional security for rural poor.

9. ANIMAL NUTRITION

Fundamentals of Animal Nutrition: Chemical composition of animal body and food. Function and fate of nutrients in animal body. Regulation of food intake. Digestion and metabolism of carbohydrates, proteins and lipids in ruminants and non-ruminants. Factors influencing digestive and metabolic processes. Water and its importance. Role of essential amino acids and fatty acids, Basal metabolism. Partitioning of energy and its significance.

Minerals and Vitamins: Scope of minerals and vitamins in animal production. Classification of minerals and vitamins. Functions, metabolic roles, deficiency/toxicity syndromes and requirements. Mineral antagonism and synergism. Inter relationship among minerals, vitamins and hormones. Rumen Ecosystem and function : Development of rumen and influence of dietary factors on rumen ecosystems. Nature and type of organisms inhabiting rumen and their classification and factors influencing them. Defaunation and its effects on rumen fermentation. Role of rumen microorganisms in digestion. Mechanism of bioconversion of feed nutrients in rumen and production of metabolites viz. VFA, microbial protein, methane etc. and their utilization. Nonprotein nitrogen metabolism in rumen. Influence of dietary regimes, buffers, rate of passage, rumen dilution, acid base balance etc. on fermentative activity in rumen. Manipulation of microorganisms in the rumen. Techniques for rumen bypass nutrients and their impact on animal production.

Nutritional disorders and metabolic diseases: Syndromes of deficiency and toxicity of nutrients in dairy cattle and monogastric animals including poultry.

Diseases associated with disturbed metabolic processes. Antimetabolites in feed, their metabolism and detoxification methods. Environmental contaminants in feeds and their effect on livestock. Feed Evaluation: Feed, its classification and sources. Relationship between chemical composition and nutritive value of feed. Protein quality of feeds and methods to evaluate. Energy value of feeds and methods of estimation. Methods of feed evaluation, their effectiveness and limitations. Analytical Techniques for the analysis of biological fluids. Design of animal experiments and statistical techniques to evaluate nutritive value of feeds.

Applied Animal Nutrition : Role and inter-relationship between nutrients and productivity of animals. Influence of dietary factors on quality of animal products. Feeding standards and their limitations. Nutrient requirements for body processes and productive functions. Feeding of calves, heifers, lactating cows, bulls, working animals and other livestock maintained for milk, egg, meat or wool production. Comparative nutrient utilization, input and output relationship and feed conversion efficiency. Factors affecting feed conversion efficiency. Computation of ration for different categories of animals. Feed processing and Technology : Animal feed supply and demand. Linear programming in ration formulation. Feed procurement and storage practices. Processing of feeds and forages and agro-industrial by-products by physical, chemical and biological methods. The effect of processing of feeds on availability and utilization of nutrients. Role of pretreatment of feedstuffs. Importance of agro industrial by-products in livestock feeding. Role of feed additives including probiotics in livestock. Compounding and pelleting techniques

and their effect on nutrient availability. Interaction between animals and environment. Methane emission and its role in contributing towards green house effect.

10. ANIMAL PHYSIOLOGY

Digestion, absorption and metabolism of nutrients in ruminants and non-ruminants. Physiological role of fat and water soluble vitamins and minerals. Control of respiration and transport of gases. Kidney function and urine concentration. Water and electrolyte homeostasis. Cardiac structure and function. Dynamics of blood circulation and control of cardiac functions. Haematopoiesis, haemostasis and micro-circulation. Nerve conduction and impulse transmission, receptors, central nervous system, autonomic nervous system. Skeletal muscle and muscle contraction. Special senses.

Environmental components and their effect on animal production. Thermal balance. Homeothermy and heat tolerance in dairy animals. Macro and microclimates. Animal housing.

Thermodynamic laws and energy transformation. Growth curve, energetic efficiency of work, growth and milk production. Anatomy and histology of endocrine glands, their secretions and functions. Neuro-endocrine mechanisms. Mode of action of protein and steroid hormones. Hypothalamo-hypophyseal-gonadal relationship. Endocrine disorders. Puberty and its endocrine control, Spermatogenesis and oogenesis. Functional anatomy of spermatozoa. Factors affecting sperm production and maturation, estrous cycle. Sperm capacitation and fertilization. Folliculogenesis, ovulation and corpus luteum formation. Factors affecting conception rate and reproductive

efficiency. Role of placenta. Physiology of parturition. Induction of parturition. Biotechniques in animal reproduction. Anatomy of mammary system. Mammary gland development. Hormonal control of mammogenesis, lactogenesis and galactopoiesis. Neural control of lactation. Mammary involution. Synthesis of milk constituents, residual milk, milking frequency and milking rates. Factors affecting yield and composition of milk. Induced lactation.

11. DAIRY ECONOMICS

Theory of demand, firm, market and distribution: general equilibrium and welfare economics; National income accounting; Consumption function, Theory of money, investment, employment and inflation; Principles of Public Finance; Basic concepts of International Trade; Economic development and growth; Theory of trade cycles & various growth models; Farm management principles and decisions; Farm business analysis; Production function: Production relationships; Economic efficiency and optimization, Risk and Uncertainty; Project appraisal techniques; Elements of Statistics, Methods of sampling; Correlation and regression; Least squares estimation and problems in estimation of parameters; BLUE properties of least squares estimates, Tests of significance, Problems of multicollinearity, auto-correlation and heteroscedasticity; Linear Programming; Index numbers; Economic applications of differential calculus and matrices; Market and marketing functions, systems efficiency and margins; Price behaviour and analysis of farm products; Capital and credit availability, requirement and management; Financial tests; Agricultural/Dairy Cooperatives; Indian & global economic scenario.

12. DAIRY EXTENSION EDUCATION

Extension Education: Concept, Importance, history of Extension in India and abroad with special emphasis to Dairy development, Extension education, adult education and distance education. Various extension methods and approaches. Theories of adult learning. Scope and role of extension in Dairy and rural development in India. ICAR and SAU systems, various agencies involved in Extension in India. Teaching and learning process. ITKs. Various development programmes in India. Linkages-concept and implications in Dairy extension. Communication: Concept, theories, channels, models. Communication competence, empathy, message design and treatment, social networks. Innovationdecision process. Diffusion and adoption – a critical appraisal. AV aids and media. ICTs in agricultural and rural developmentproblems, prospects and types. Information kiosks. AKIS, Basics of Agricultural Journalism. Extension Management: Concept, theories. Evolution of management sciences. Administration and supervision. Functions of management. Communication in management. Decision making. Organizational behaviour, Organizational climate, Organizational development. MBO, PERT, CPM, LFA and project management techniques. Stress management and conflict management. Performance appraisal. Programme planning – steps, plan of work, monitoring, evaluation and impact analysis. Training for HRD: Concept, present status, future needs. Models, typology, methods and evaluation. Training institutes in India. Experiential learning techniques. Capacity building in relation to livestock farming. TNA and CONA Entrepreneurship development – concept and importance. Socio-psychological factors in Extension:

Attitude, aspiration, motivation, perception. Basics of rural sociology, rural structure, culture, norms, institutions, group dynamics, rural leadership. Theories of social change. Research methods in extension science: Social research – concept, types, importance. Scientific approach, characteristics of scientific methods. Theory and hypothesis. Variables – Concept and Construct. Steps in research formulation. Research designs. Data collection – methods and tools. Measurement – concept, levels and tools. Reliability and validity. MAX-MIN-CON principle. Processing of data. Report writing. Action research and participatory research. Participatory approaches – RRA, PRA, PLA and PTD. Statistics in Extension Science: Sampling, distribution, tests of significance, ANOVA, correlation, regression, discriminative scale construction. Parametric and nonparametric statistics. Statistical packages for analysis in social sciences. Recent advances in Extension science: Publicprivate partnership in extension. Privatization of extension in India. Market-led extension initiatives. Agri-clinics and Agri business centres. NATP, NAIP, SREP, FSRE, Kissan call centers, expert system in extension.

13. AGRONOMY (FORAGE PRODUCTION)

Importance of Agriculture in national economy; basic principles of crop production; environmental impacts on crop production; cultivation of major cereals, pulses, oilseeds, fodder and commercial crops.

Soil and its physical, chemical and biological properties, factors affecting the soil fertility and productivity. Major soils of India. Use of common farm implements- primary and secondary tillage implements, seed drills, seed

planters, zero till implements, fertilizer broad casters, bailers, chaff cutters, harvesters, reapers and combines.

Principles of agricultural economics, structural transformation in economy and its globalization; contribution of agriculture in world and Indian economy; principles of Farm Management; Important rural development programmes in India; organizational set up of agricultural research, education and extension in India. Principles of crop production, crop plants in relation to environment, concepts involved in growth analysis; quantitative agro-biological principles and their validity; classification of climate, agro-climatic zones of India, their characteristic features; physiological limits of crop yield and variability in relation to the agro-ecological optimum; Concepts of photosynthesis, respiration, transpiration, photoperiodism and vernalization, plant hormones; Tillage – concepts, types and practices. Principles and practices of conservation agriculture. Principles and practices of organic and precision agriculture.

Principles and practices of weed control in component crops and cropping systems; crop weed competition, herbicide-formulations, their classification, selectivity and mode of action, integrated weed management.

Introduction, origin, history, production, distribution, cultural practices, varieties, quality, biomass production and bioenergetics of major field and forage crops, Establishment, renovation and management of grassland and pastures, Year round fodder production systems and their management, Importance and methods of fodder conservation in animal nutrition. Anti-quality factors and their management.

Soil fertility and its management; Indices of soil health, essential plant nutrients, their functions and deficiency symptoms in plants; organic manures, chemical and bio-fertilizers and fertilizer usage. Measures to improve fertilizer use efficiency, principles involved in time and methods of fertilizer application. Nutrient requirements of important crops and cropping systems. Integrated nutrient management.

History of irrigated agriculture, soil-water-plant relationship, soil moisture stress and plant growth; processes of plant water uptake, drought resistance in crops, mechanisms of drought tolerance and crop adaptability, soil moisture conservation techniques, water harvesting and other agro techniques for dryland agriculture; measurement of soil moisture, measurement of flowing/storage/discharge of water, methods of scheduling irrigation, methods of irrigation, quality of irrigation water; watershed management concepts; management of excess soil water, agricultural drainage- principles and practices; problem soils - saline, alkali, saline alkali and acid soils, principles, practices and prospects of wasteland management. degradation processes, soil erosion and its control,

Cropping systems - principles and practices; changing cropping patterns in different agro-climatic zones; sustainability - concept and practices; agro-forestry systems - concepts and practices viz agri-silviculture, agrihorticulture, silvipastoral, agri-silvipastoral, agrihorti-silvipastoral, pisciculture, apiculture, alley cropping etc. Elements of statistics, Principles of experimental designs, analysis and interpretation of data, methods of

14

statistical analysis and statistical designs.

ANIMAL REPRODUCTION, GYNECOLOGY AND OBSTETRICS

Comparative reproduction in bovine, bubaline, equine, ovine, caprine, canine and feline species, Brain centers of reproduction (Hypothalamus and pituitary glands), development of male and female reproductive system, sex determination and differentiation, Functional anatomy of male and female reproductive system of farm animals, Growth, puberty and sexual maturity, Physiology of puberty, Factors affecting the attainment of puberty, Reproductive cycles (oestrous cycle) in female farm animals, Phases of estrous cycle, endocrine changes during estrous cycle, structural changes in reproductive organs during estrous cycle, Structure of follicle and oocyte, Follicular development, follicular dynamics, endocrine, autocrine and paracrine factors involved in follicle development, different categories of follicle, the process of ovulation, transformation of follicle into corpus luteum, functions of corpus luteum, dynamics of corpus luteum, Transport of male and female gametes, short term storage and long term storage of spermatozoa, factors aiding in transport of gametes – muscles and endocrine factors, barriers in sperm transport, role of oviduct in capacitation, Physiology of fertilization, transport of fertilized oocyte to uterus, Changes in the reproductive tract during gestation, Development of embryo, species difference, implantation, development of different organs, placental development, different types of placentation, functions of placenta, fetal development and growth, gestation and accidents during the gestation period, Pelvis and pelvimetry, Parturition – Signs approaching parturition, initiation and stages of parturition, induction of parturition and postpartum period,

Presentation, position and posture, Causes and forms of dystocia and its treatment, Epidural anaesthesia, Obstetrical maneuvers including fetotomy and Caesarean section. Post-partum complications in domestic animals, retention of placenta, uterine prolapse, classification etiology and pathogenesis of metritis and therapeutic approach, Post parturient metabolic disorders and management, Fertility, infertility and sterility, Evaluation of herd fertility, Incidence and economic role of infertility, forms of infertility, congenital and hereditary defects, infectious diseases, Pathological conditions of ovary, oviduct, uterus, cervix and vulva. Management causes of infertility, Hormonal causes of infertility, anestrus, repeat breeding, cystic ovarian degeneration, sexual health control and reproductive health programmes, sexually transmitted diseases. Synchronization of oestrous cycle in domestic animals, control of ovulation, Embryo transfer technology, in-vitro fertilization, Micromanipulation of embryos, Embryo splitting and cloning, Stem cells and production of transgenic animals, applications of ultrasonography, laparoscopy and ovum-pick up technology in animal reproduction.

Comparative anatomy of male reproductive system, Thermoregulation of testis and blood testis barrier, Spermatogenesis including cycle of somniferous epithelium and spermatogenic wave, Sperm morphology and ultra-structure of spermatozoa, sperm transport, maturation and storage in male genital tract, Secretions of male reproductive tract including accessory glands and their role in reproduction, Sexual / mating behavior, Training of bulls for semen collection, Semen collection, Semen and its composition, biochemistry of semen and sperm metabolism, sperm abnormalities and its classification, sperm

function tests, sexing of spermatozoa, Extension of semen and preservation, Cold shock and ultra-low temperature shock, Cryoprotectants, Semen additives, Evaluation of frozen semen, Transport and storage semen, Handling of frozen semen, Liquid nitrogen and its containers, Insemination techniques, Planning and organization of semen bank, breeding soundness evaluation, assessment of male fertility, Factors affecting male fertility.

Hormonal regulation of male and female reproduction, Reproductive hormones, Source of hormones, hormones and their classification, mechanism of action of hormones, effect of hormones on different target organs and clinical uses of hormones.

15 **FOOD SAFETY AND QUALITY ASSURANCE (FSQA)**

Basic Concepts of Food Safety and Quality Assurance : Definition and Terminology; Current changes in global food safety standards and their harmonization; HACCP concept, principle and application in food industry; General Principles, Fundamentals and Standards requirements of QMS (ISO: 9000:2000); TQM tools and techniques; Biosafety concept, principles and safety levels; EMS/Laboratory Management System-ISO: 17025; NABL Accreditation of Food Laboratory; Statistical Quality Control.

Concept of Risk Analysis : Microbiological risk profile of pathogen/toxins, ICMSF Risk Ranking of Dairy Products; Risk Management Issues and Control Strategies for dairy products; Food infection, intoxication and toxi-infection; Growth /survival of pathogens, their pathology of illness, mode of transmission, virulence and infectivity.

General Principles of Food Law : Integrated Food Law and its harmonization; Standards, Specifications and guidelines; 2 and 3 class sampling

plan; FSSAI Microbiological criteria for different foods including dairy products; Conventional / rapid detection methods/commercial kits for hygiene and safety indicators; Bio-sensors and their current application in food safety evaluation.

Food Microbiology : Classification of food related microorganisms, Sources of contamination, Types of food spoilages of raw and processed fruits, vegetables, meat and fish and milk products, preservative principle, microbial defects and their control measures, Role of different Bacteria in food fermentation; Clean milk production and antimicrobial systems in raw milk; Microbiological aspects of bactofugation, thermization, pasteurization, sterilization, boiling, UHT, non-thermal processes and membrane filtration techniques; Microbiological quality of cream and butter, ice cream, evaporated and condensed milk, dried milks, infant dairy foods, heat desiccated, acid coagulated, fermented and frozen products.

Food Quality Analysis : Setting up of quality control labs; Accreditation of Quality control laboratory and Role of national & International organization viz. IDF; CAC; AOAC; WTO, BIS; CCFS; FSSAI and Agmark; Sampling techniques for chemical analysis of foods with respect to Macro & micro food nutrient analysis by colorimetric, spectrophotometric, flourimetric and chromatographic techniques; Definition and importance of sensory evaluation and General rules of sensory evaluation; Requirements of sensory evaluation; Techniques of sensory evaluation: types of tests and ranking, scoring techniques; Detection of Chemical contaminants /residues: pesticides; antibiotics; heavy metals; radionuclides etc.

ANNEXURE-I

FORM OF SURETY BOND TO BE EXECUTED BY A CANDIDATE WHO IS PURSUING M.Sc./ Ph.D. DAIRYING AT NDRI DEEMED UNIVERSITY

KNOW ALL MEN BY THESE PRESENT THAT I _____ Son/ Daughter of _____ resident of _____ District of _____ at present pursuing M.Sc./ Ph.D in the Discipline of _____ in National Dairy Research Institute, Deemed to be University under ICAR as Junior Research Fellow/Senior Research Fellow/Institute Scholarship (hereinafter called the obligor) and Sh./ Smt./ Kum. _____ Son/ Daughter of _____ resident of _____ (Full Address) (hereinafter called sureties) do hereby jointly and severally bind ourselves and our respective heirs, executors and administrators to pay to the Indian Council of Agricultural Research, a Society registered under the Societies Registration Act-1860, Krishi Bhawan, Dr. Rajendra Prasad Road, New Delhi-110 001 (herein after called "The ICAR") on demand the sum of Rs. _____ (Rupees _____) together with interest thereon from the date of demand of Government rates for the time being in force on Government loans (if payments is made in a country other than India, equivalent of the said amount in the currency of the country converted at the official rate of exchange between that country and India) and together with all costs between attorney and client and all charges and expenses that shall or may have been incurred by the I.C.A.R.

WHEREAS the obligor has been pursuing M.Sc./Ph.D. as Junior Research Fellow/Senior Research Fellow /Institute Scholarship of the Indian Council of Agricultural Research as a result of the competitive examination held in the year _____.

AND WHEREAS for the better protection of the I.C.A.R., the obligor has agreed to execute this bond with such condition as here under is written.

AND WHEREAS the said sureties have agreed to execute this bond as Sureties on behalf of the above bounden _____.

NOW THE CONDITION OF THE ABOVE WRITTEN OBLIGATION IS THAT in the event of the named obligor, Sh./Smt./Kum. _____ leaving the studies after taking admission as JRF/SRF on the basis of the competitive examination without completion of M.Sc./Ph.D. of 2/3 years or on his/her being rusticated/removed from the Deemed University, the obligor and/or the Sureties shall forthwith pay either jointly or severally to the ICAR as may be directed by the ICAR on demand the sum of Rs. _____ (Rupees _____) together with interest thereon from the date of demand at Government rates for the time being in force on Government loans.

AND upon the obligor Sh./Smt./Kum. _____ and/or Sh./Smt./Kum. _____ the sureties aforesaid, making such payment the above written obligation shall be void and if no effect otherwise, it shall remain in full force and virtue.

PROVIDED ALWAYS that the liability of the sureties hereunder shall not be impaired or discharged by reasons of time being granted or by any forbearance, act or omission of the ICAR or any person authorized by them (whether with or without the consent or knowledge of the sureties) nor shall it be necessary for the ICAR to sue obligor first before suing the sureties Sh./Smt./Kum. _____ or any of them for amounts due hereunder.

The bond shall in all respect be governed by the laws of India for the time being in force and the rights and liabilities hereunder shall, where necessary, be accordingly determined by the appropriate courts in India.

Signed and dated this _____ day of _____ Two thousand and _____ signed and delivered by the obligor above named Sh./ Smt. Kum. _____ In the presence of _____

Signature of Obligor

Witnesses:

(Signature, Name and Address)

1. _____.

2. _____.

Signed and delivered by the surety above named Sh./Smt./Kum. _____ in the presence of _____.

Signature of Obligor

Witnesses:

(Signature, Name and Address)

1. _____.

2. _____.

*(In the case of married women candidate, her husband's name is to be mentioned as wife of _____).

ANNEXURE-II

Secrecy Agreement

This agreement dated the day of 2016 by and between..... (hereinafter referred to as the Institute) and Mr./Mrs./Miss (hereinafter referred to as the Research Scholar).

Whereas the institute is engaged in research and development (R&D) in various products and develops various processes and inventions during the course of the R&D activities carried out by the organization.

Whereas the Research Scholar has been admitted to the institute for his/her Master's/ Ph.D programme involving R&D activities as part of the programme. During the course of scholarship with the organization he/she will become familiar with and aware of information as to the specific manner in which the R & D activities are carried out by the institute and technical and scientific information regarding technologies, processes and raw materials used, specifications required and equipments required to develop the information generated out of the R&D activities carried out during the period of his/her scholarship.

And whereas the institute recognizes that the institute's activities of R&D have a number of confidential information the protection of which is of critical importance to the institute.

And whereas the organization shall sustain great loss economically and technologically if during the term of this scholarship with the organization or for a period of five years immediately following the completion of the scholarship for any reason whatsoever the scholar should violate the provisions relating to non-disclosure of proprietary information in this Agreement.

Whereas the institute and the scholar desire to formally evidence their relationship and terms regarding non-disclosure of proprietary information during the course of scholarship, and thereafter.

Now therefore, in consideration of the mutual promises, terms and conditions set forth herein and performance of each it is hereby agreed as follows:

1. (a) The scholar shall observe strict confidentiality respecting of activities of the organization.

(b) The scholar shall not in any manner in the performance of his research programme as assigned to him disclose, communicate, or part with directly or indirectly any or all confidential or technical information, know-how proprietary information of any plants drawings, specifications, process and engineering information details or data and any information relative thereto of whatsoever nature to any person or firm, company, organization, association or any other entity provided always if in the performance of his study and in good faith any such information if disclosed may not amount to breach of this agreement.

2. Proprietary Information: The scholar recognizes and acknowledges that the information, techniques, processes, developments, work in progress, or other secret or confidential information relating to organization as they may exist from time to time, are valuable, special and unique assets of organization.

In addition, the scholar recognizes that the institute is continually engaged in research, design and development of new products and innovations and improvements to the information, techniques, processes, development other secret and confidential matters relating to the organization as they may exist from time to time, are valuable, special and unique assets of the organization business. Therefore, the scholar agrees as follows:

A. That the scholar will hold in strictest confidence and not disclose, reproduce, publish or use in any manner, whether during or subsequent to his scholarship, without the express authorization of the organization any information, design, manufacturing technique, process, or any other secrets or confidential matter relating to any aspect of the organization as designated from time to time by the institute except as such disclosure or use may be required in connection with scholar's work for the organization.

B. That upon request or at the time of leaving the organization the scholar will deliver to, and not keep or deliver to anyone else, any and all notes, memoranda, documents and, in general, any and all material relating to the organization.

C. That the institute may from time to time designate other subject matters requiring confidentiality and secrecy which shall be deemed to be covered by the terms of this Agreement. However, any such matters must be mutually agreed upon by both the institute and the scholar.

3. Breach: In the event of a breach or threatened breach by the scholar of the provisions of Paragraph 2, the institute shall be entitled to an injunction:

A. Restraining the scholar from disclosing, in whole or in part, any information described in Paragraph 2 or from rendering any services to any person, firm, corporation association or other entity to whom such information, in whole or in part, has been disclosed or is threatened to be disclosed; and/or.

B. Requiring that the scholar deliver to the organization all information, documents, notes, memoranda and all discoveries or other material as described above upon the scholar's leaving the Organization. Nothing herein shall be construed as prohibiting the Organization from pursuing other remedies available to the Organization for such breach or threatened breach, including the recovery of damages from the scholar. In witness whereof the parties have executed this agreement on the day, date and year first above written.

Signed and dated this _____ day of _____ Two thousand and _____ signed and delivered by the obligor above named Sh. / Smt. Kum. _____ In the presence of _____ (Employee)

Signature of Obligor

Witnesses: (Name and Address)

1. _____

2. _____

Date: _____

(Employee)

Witnesses: (Name and Address)

1. _____

2. _____

Date: _____

Anti-ragging Measures : Submission of Affidavit by The Students / Parent / Guardian

Dear Parents/Guardian/Student,

You are fully aware of the orders of the Government and of Hon'ble Supreme Court on the Anti-Ragging measures. As per the latest policy all students and parent/guardians are required to submit an affidavit before a student is allowed registration in the University. The format of Affidavits is given at Annexure-IV and Annexure-V and to be submitted on a Non-Judicial paper of Rs.10/- duly attested by the oath commissioner.

All parents/guardian/students may get them duly attested by the Oath commissioner and bring it on the day of student's registration. Kindly note that there are two Affidavits as Annexure-IV & V. The Annexure-IV is to be signed by the student and Annexure-V shall be signed by the parent / guardian.

In case a student does not submit the same he/she shall not be allowed to proceed with the registration.

It is further, requested that this information be passed amongst friends.

Best wishes,

Sd/-

Director

ANNEXURE-III

Affidavit by the Student

1) I, _____ (full name of student with admission/ registration/ enrolment number) S/o D/o Mr. /Mrs. /Ms. _____, having been admitted to (name of the institution), have seen the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, as placed on the NDRI website; www.ndri.res.in (hereinafter called the "Regulations") carefully read and fully understood the provisions contained in the said Regulations.

2) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.

3) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against me in case I am found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.

4) I hereby solemnly aver and undertake that a) I will not indulge in any behaviour or act that may be constituted as ragging under clause 3 of the Regulations. (b) I will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.

5) I hereby affirm that, if found guilty of ragging, I am liable for punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against me under any penal law or any law for the time being in force.

6) I hereby declare that I have not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, I am aware that my admission is liable to be cancelled.

Declared this ____ day of _____ month of ____ year.

Name :

Signature of deponent

Verification

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein. Verified at(place)on this the (Day.....) of (Month) ,(Year) .

Signature of deponent

Solemnly affirmed and signed in my presence on this the (day) of (month) , (year) after reading the contents of this affidavit

OATH COMMISSIONER

ANNEXURE-IV

Affidavit by Parent /Guardian

1) I, Mr. /Mrs. /Ms. _____ (full name of parent/guardian) father/mother/guardian of , (full name of student with admission / registration / enrolment number) , having been admitted to the National Dairy Research Institute , have been informed about the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the "Regulations"), carefully read and fully understood the provisions contained in the said Regulations as placed on NDRI website (www.ndri.res.in).

2) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.

3) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against my ward in case he/ she is found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.

4) I hereby solemnly aver and undertake that a) My ward will not indulge in any behavior or act that may be constituted as ragging under clause 3 of the Regulations. (b) My ward will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.

5) I hereby affirm that, if found guilty of ragging, my ward is liable for punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against my ward under any penal law or any law for the time being in force.

6) I hereby declare that my ward has not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, the admission of my ward is liable to be cancelled.

Declared this ____ day of _____ month of ____ year.

Name/Address/Telephone/ Mobile No

Signature of deponent

Verification

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at _____(place) on this the _____ (day) of _____ (month) , _____(year) .

Signature of deponent

Solemnly affirmed and signed in my presence on this the _____(day) of _____ (month) , _____(year) after reading the contents of this affidavit.

OATH COMMISSIONER

ANNEXURE-V

Proforma for Authority Letter and Undertaking for Authorised Representative to Participate in Counseling on behalf of Candidate

I Son/Daughter of Shri..... bearing Roll No..... do hereby authorize Shri/Mrs/Miss..... Son/Wife/Daughter of Shri..... R/o..... to represent me on..... (date) before the Committee for allotment of a seat in University/Institute.

The signature and Photograph of above named person are attested below:

Coloured Photograph of the Candidate	Attested by the Principal of School/ College/Head of Institution Last attended or by a Gazetted Officer (With full of address of Attesting Authority)	Name _____ Roll No. _____ Merit Rank _____ Address _____
Coloured Photograph of the Candidate	Photograph of representative to be Attested by Gazetted Officer	(Signature of the authorized representative) (Attested by the Candidate)

I Son/Daughter of Shri..... aged Years bearing Roll No. placed at Merit Rank in Ph.D. Entrance Examination 2016 for Admission at NDRI, Karnal do hereby solemnly affirm and undertake that the decision of my authorized representative Shri/Mrs./Miss Son/Daughter/Wife of Shri regarding the allotment of seat in the University on the date of personal appearance (.....) shall be binding on me and I shall not have any claim whatsoever, other than the decision taken by my authorized representative on my behalf.

.....
(Signature of the Candidate)

Name :

Roll No.:

Merit Rank:

NOTE : Any authorised representative can not represent more than two candidates.

ANNEXURE-VI

Scheduled Caste / Tribe Certificate -format

1. This is to certify that Shri/Smt/Kumari..... Date of BirthSon/Daughter of.....of village/townin District/Division of State/Union Territorybelongs to theCaste/Tribe which is recognized as SC/ST under The Constitution (Scheduled Caste) Order, 1950. The Constitution (Scheduled Caste) Union Territories Order, 1951. The Constitution (Scheduled Tribes) Union Territories Order, 1951, as amended by the SCs And STs List (Modification) Order, 1950; The Bombay Reorganisation Act, 1960; The Punjab Reorganization Act, 1966; The State Of HP Act, 1970; The North Eastern Areas (Reorganisation) Act, 1971 and the SCs And STs Order (Amendment) Act, 1976. The Constitution (Jammu & Kashmir) SC Order, 1956. The Constitution (Andaman & Nicobar Islands) SC Order 1959 as amended by SCs and STs Order (Amendment) Act, 1976. The Constitution (Dadra And Nagar Haveli) SCs Order, 1962. The Constitution (Dadra And Nagar Haveli) STs Order, 1962. The Constitution (Pondicherry) SCs Order, 1964. The Constitution Scheduled Tribes (Uttar Pradesh) Order, 1967. The Constitution (Goa, Daman & Diu) SCs Order, 1968. The Constitution (Nagaland) STs Order, 1970. The Constitution (Sikkim) SCs Order, 1968.
2. Shri/Smt/Kumari.....and/or his/her family ordinarily reside(s) in Village/Town..... of District.....of State/Union Territory of
3. Applicable in the case of SC/ST persons who have migrated from State/Union Territory Administration to another State/Union Territory. The certificate is issued on the basis of the SC/ST Certificate to Shri/Smt. father/mother of Shri/Smt/Kumari..... of Village/Town..... in District/ Division..... of the State/Union Territory who belongs to the Scheduled Caste/ Scheduled Tribe in the State/Union Territory issued by the (Name of the prescribed authority) vide their No Dated.....

Signature

Designation (With Seal of Office)

Place (State/Union Territory)

Date

*Please delete the words which are not applicable. Please quote specific presidential order.

NOTE: The term ordinarily reside(s) used here has the same meaning as in section 20 of the representation of the people's act, 1950.

List of Authorities Empowered to Issue SC/ST Certificates

1. District Magistrate/Additional District Magistrate/Deputy Commissioner/Additional Deputy Commissioner/ Deputy Collector/1st Class Stipendiary Magistrate/City Magistrate/Sub-divisional Magistrate/Taluka Magistrate/ Executive Magistrate/Extra Assistant Commissioner not below the rank of 1st class Stipendiary Magistrate.
2. Chief Presidency Magistrate/Additional Chief Presidency Magistrate/Presidency Magistrate.
3. Revenue Officers, not below the rank of Tehsildar
4. Sub-divisional Officer of the area where the candidate and/or his family normally resides.
5. Administrator/Secretary to Administrator/Development Officer (Lakshadweep Islands).

ANNEXURE-VII

*Form of Certificate to be Produced by other Backward Classes
(OBC Applying for Admission to Central Educational Institutions (CEIS),
Under the Government of India*

This is to certify that Shri/Smt./Kum. _____ Son/Daughter of Shri/Smt. _____ of Village/Town _____
District/Division _____ in the _____ State belongs to the _____
Community which is recognized as a backward class under:

- (i) Resolution No. 12011/68/93-BCC(C) dated 10/09/93 published in the Gazette of India Extraordinary Part I Section I No.186 dated 13/09/93.
- ii. Resolution No. 12011/9/94-BCC dated 19/10/94 published in the Gazette of India Extraordinary Part I Section I No. 163 Dated 20/10/94.
- iii. Resolution No. 12011/7/95-BCC dated 24/05/95 published in the Gazette of India Extraordinary Part I Section I No. 88 Dated 25/05/95.
- iv. Resolution No. 12011/96/94-BCC dated 9/03/96.
- v. Resolution No. 12011/44/96-BCC dated 6/12/96 published in the Gazette of India Extraordinary Part I Section I No. 210 Dated 11/12/96.
- vi. Resolution No. 12011/13/97-BCC dated 03/12/97.
- vii. Resolution No. 12011/99/94-BCC dated 11/12/97.
- viii. Resolution No. 12011/68/98-BCC dated 27/10/99.
- ix. Resolution NO. 12011/88/98-BCC Dated 6/12/99 published in the Gazette of India Extraordinary Part I Section I No. 270 dated 06/12/99.
- x. Resolution NO. 12011/36/99-BCC dated 04/04/2000 published in the Gazette of India Extraordinary Part I Section I No. 71 dated 04/04/2000.
- xi. Resolution NO. 12011/44/99-BCC Dated 21/09/2000 published in the Gazette of India Extraordinary Part I Section I No. 210 dated 21/09/2000.
- xii. Resolution NO. 12015/9/2000-BCC dated 06/09/2001.
- xiii. Resolution NO. 12011/1/2001-BCC dated 19/06/2003.
- xiv. Resolution NO. 12011/4/2002-BCC dated 13/01/2004.
- xv. Resolution NO. 12011/9/2004-BCC dated 16/01/2006
- xvi. Published in the Gazette of India Extraordinary Part I Section I No. 210 dated 16/01/2006.
- xvii. Resolution NO. 12011/14/2004-BCC dated the 12th March, 2007, published in the Gazette of India-Extraordinary-Part I, Section 0-I, No.67 dated 12th January, 2007.

Shri/Smt./Kum. _____ and/or his family ordinarily reside(s) in the _____ District/Division of _____ State. This is also to certify that he/she does not belong to the persons/sections (Creamy Layer) mentioned in Column 3 of the Schedule to the Government of India, Department of Personnel & Training O.M. No. 36012/22/93-Estt.(SCT) Dated

08/09/93 which is modified vide OM No. 36033/3/2004 Estt.(Res.) dated 09/03/2004.

Dated:

DISTRICT MAGISTRATE/ DEPUTY COMMISSIONER, ETC.

SEAL

NOTE :

(a) The term 'Ordinarily' used here will have the same meaning as in Section 20 of the Representation of the People Act, 1950.

(b) The authorities competent to issue Caste Certificates are indicated below:

(I) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / Ist Class Stipendiary Magistrate / Sub-Divisional Magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (Not Below The Rank Of Ist Class Stipendiary Magistrate).

(ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.

(iii) Revenue Officer not below the rank of Tehsildar' and

(iv) Sub-Divisional Officer of the area where the candidate and / or his family resides.

Declaration /Undertaking - For OBC Candidates Only

I, _____ Son/Daughter of Shri _____
resident of Village/Town/City _____ District _____ State hereby
declare that I belong to the _____ Community which is recognised as a Backward Class
by the Government of India for the purpose of reservation in services as per orders contained in Department
of Personnel and Training Office Memorandum No.36012/22/93- Estt. (SCT), dated 8/9/1993. It is also
declared that I do not belong to persons/Sections (Creamy Layer) mentioned in Column 3 of The Schedule to
the above referred Office Memorandum, Dated 8/9/1993, which is Modified vide Department of Personnel
and Training Office Memorandum No.36033/3/2004 Estt. (Res.) Dated 9/3/2004.

Signature of the Candidate

Place:

Date:

- Declaration/undertaking not signed by candidate will be rejected.
- False declaration will render the applicant liable for termination of registration at any time. Creamy Layer Definition OBC Creamy layer is defined comprehensively at <http://ncbc.nic.in/html/creamyayer.html> All candidates for the OBC reserved seats should make sure that they do not satisfy any of the creamy layer criteria as listed in the website. Some general exclusion for quick reference (no way comprehensive) are as follows :

1. Any of the parents holds a constitutional position in Govt. of India.
2. Any one of the parents is a class I officer.
3. Both the parents are class II officers.
4. Any one of the parents is employed in an equivalent rank to class I officer or both parents equivalent to class II officer in a public sector, insurance companies, banks, universities or in other organizations.
5. Land holdings on irrigated land is 85% or more of the statutory ceiling area.
6. Parents income is more than Rs. 4.5 lakhs per year.

GENERAL ADMINISTRATION

1.	A.K. Srivastava, Ph.D.	Director
2.	R.R.B. Singh, Ph.D.	Joint Director (Academic)
3.	R.K. Malik, P.hD.	Joint Director (Reseach)
4.	Sushanta Saha, MBA	Joint Director (Administration) & Registrar
5.	S.K. Kanawjia, Ph. D.	Academic Coordinator
6.	Sumit Arora, Ph.D.	Controller of Examinations
7.	S. George, MA, PGDLA	Comptroller
8.	Mithlesh Kumar, M.Sc., PGDCSA	Sr. Fin. & Acts. Officer
9.	Rekha Sharma, M.B.B.S.	Sr. Medical Officer
10.	Manoj Kumar, M.B.B.S.	Sr. Medical Officer
11.	Ashutosh, Ph.D.	Incharge Security

HOSTELS

1.	J.K. Kaushik, Ph.D.	Chief Hostel Warden
2.	Rubina Kumari Baithalu, Ph.D.	Hostel Warden (Kaveri Girls Hostel)
3.	A. Kumaresan, Ph.D.	Hostel Warden (Krishna Hostel)
4.	Rakesh Kumar, Ph.D.	Hostel Warden (Sutlej Hostel)
5.	Yogesh Khetra, M.Tech.	Hostel Warden (Brahmaputra Hostel)
6.	P. Narender Raju, Ph.D.	Hostel Warden (Narmada Hostel)
7.	Pradip V. Behare, Ph.D.	Hostel Warden (Alakhnanda Hostel)

SRS, BANGALORE

1	B.Surendra Nath, Ph.D.	Head
2.	Menon Rekha Ravindra, M.Sc.	Incharge, Education Division
3.	V.R.V. Surinder Nath	Medical Officer
4.	T.R. Thivija Kumari	Sr. Technical Officer
5.	Shashikala	AAO

ERS, KALYANI

1.	T.K. Datta, Ph.D.	Head
2.	Sukh Dev Singh Chauhan	AAO

CONTACT PERSONS IN UNIVEVERSTY OFFICE

1.	Kamlesh Kumari	Under-graduate Programme
2.	Rekha Verma	Post-graduate Programme
3.	Shiv Kumar	Doctoral Programme
4.	Subhash Chander Dhiman	Financial Affairs
5.	Ilam Chand Sharma	Academic Affairs

NDRI FACULTY

Dairy Microbiology Division

Sunita Grover, Ph.D.	Head
S.K. Tomar, Ph.D.	Principal Scientist
Shilpa Vij, Ph.D.	Principal Scientist
Naresh Kumar, Ph.D.	Principal Scientist
Chand Ram, Ph.D.	Sr. Scientist
Surajit Mandal, Ph.D.	Scientist
Raghu H.V., M.Sc.	Scientist
Rashmi H.M., M.Sc.	Scientist
Pradip V. Behare, Ph.D.	Scientist
Diwas Pradhan, M.Sc.	Scientist

Dairy Chemistry Division

Bimlesh Mann, Ph.D.	Head
Raman Seth, Ph.D.	Principal Scientist
Sumit Arora, Ph.D.	Principal Scientist
Vivek Sharma, Ph.D.	Principal Scientist
Rajan Sharma, Ph.D.	Principal Scientist
Ms. Indumathi K.P., M.Sc.	Scientist
Ms. Priyanka Singh Rao	Scientist
Ms. Richa Singh, M.Sc.	Scientist
Mr. Prem Chand Singh, M.Sc.	ACTO

Dairy Technology Division

Latha Sabikhi, Ph.D.	Head
S.K. Kanawjia, Ph.D.	Principal Scientist
A.K. Singh, Ph.D.	Principal Scientist
Kaushik Khamrui, Ph.D.	Sr. Scientist
P. Narender Raju, Ph.D.	Scientist
G.S. Meena, M.Tech.	Scientist
Yogesh Khetra, M. Tech.	Scientist
Prateek Sharma, M. Tech.	Scientist
Shaik Abdul Hussain, Ph.D.	Scientist
Gunvantsinh Rathod, M.Tech.	Scientist

Neelam Upadhyay, Ph.D.	Scientist
Writdhama Prasad, M.Tech.	Scientist
Sanket Borad, M.Tech.	Scientist

Dairy Engineering Division

A.K. Singh, Ph.D.	Head
P. Barnawal, Ph.D.	Sr. Scientist
P.S. Minz, M.Tech.	Scientist
S.K. Chaudhary, A.M.I.E.	CTO
Mr. Om Parkash Muhal	CTO
Mr. J.K. Dabas	STO
Mr. Sunil Kumar	STO
Mr. Pawan Kumar	STO
Mr. Parveen Kumar	STO
Ms. Manju Bala	STO

Animal Biochemistry Division

R.K. Sharma, Ph. D .	Head
Gautam Kaul, Ph.D.	Principal Scientist
Dheer Singh, Ph. D.	Principal Scientist
Rajeev Kapila, Ph. D.	Principal Scientist
Suman Kapila, Ph. D.	Principal Scientist
S.K. Sood, Ph. D.	Sr. Scientist
Suneel Kumar, Ph. D.	Sr. Scientist
Sunita Meena, Ph. D.	Scientist
Ravi Kant Saini, Ph.D.	ACTO

Dairy Cattle Breeding Division

A.K. Chakravarty, Ph.D.	Head
A.K. Gupta, Ph.D.	Principal Scientist
Archana Verma, Ph.D.	Principal Scientist
I.D. Gupta, Ph.D.	Principal Scientist
Avtar Singh, Ph.D.	Principal Scientist
Dr. (Mrs.) Anupama Mukherjee	Sr. Scientist

Livestock Production & Management

Pawan Singh, Ph. D.	I/C LPM
P. S. Oberoi, Ph. D.	Principal Scientist
R. K. Mehla, Ph. D.	Principal Scientist
T. K. Mohanty, Ph. D.	Principal Scientist
M. L. Kamboj, Ph. D.	Principal Scientist
S. S. Lathwal, Ph. D.	Principal Scientist
Ramesh Chandra, Ph. D.	Sr. Scientist
A. Kumaresan, Ph. D.	Sr. Scientist
Mukesh Bhakat, Ph.D.	Sr. Scientist
Nishant Kumar, M.V.Sc.	Scientist
Rubina K. Baithalu, M.V.Sc.	Scientist
Shiv Kumar, M. Sc.	STO

Dairy Cattle Nutrition

A.K. Tyagi, Ph.D	Head
Neelam Kewalramani Ph.D.	Principal Scientist
S.S. Kundu, Ph.D.	Principal Scientist
S.S. Thakur, Ph.D.	Principal Scientist
Madhu Mohini, Ph.D.	Principal Scientist
S.K. Tomar, Ph.D.	Principal Scientist
Veena Mani, Ph.D.	Principal Scientist
Chander Datt, Ph.D.	Principal Scientist
Nitin Tyagi, Ph.D.	Sr. Scientist
Goutam Mondal, Ph.D.	Sr. Scientist
Sachin Kumar, Ph.D.	Scientist
Karan Singh, M.Sc.	C.T.O.

Dairy Cattle Physiology

O.K. Hooda, Ph.D.	Head
Mahendra Singh, Ph.D.	Principal Scientist
Sujata Pandita, Ph.D.	Principal Scientist
Parveen Kumar, Ph.D.	Principal Scientist
Sohanvir Singh, Ph.D.	Principal Scientist
A.K. Dang, Ph.D.	Principal Scientist
A.K. Roy, Ph.D.	Principal Scientist
Anjali Aggarwal, Ph.D.	Principal Scientist
Manju Ashutosh, Ph.D.	Sr. Scientist
Ashutosh, Ph.D.	Sr. Scientist

Dairy Economics, Stat. & Management

Smita Sirohi, Ph.D.	Head
B. S. Chandel, Ph. D.	Principal Scientist
A.K. Chauhan, Ph. D.	Principal Scientist
Ravinder Malhotra, Ph. D.	Principal Scientist
A. K. Sharma, Ph.D.	Principal Scientist
Ajmer Singh, Ph.D.	Principal Scientist
Udita Chaudhary, M.Sc.	Scientist
Tara Chand, B.Sc.	ACTO

Dairy Extension

Khajan Singh, Ph.D.	Head
K.S. Kadian, Ph.D.	Principal Scientist
S.K. Jha, Ph.D.	Principal Scientist
Gopal Sankhala, Ph.D.	Principal Scientist
K. Ponnusamy, Ph.D.	Principal Scientist
Jancy Gupta, Ph.D.	Principal Scientist
B.S. Meena, Ph.D.	Sr. Scientist.
H.R. Meena, Ph.D.	Sr. Scientist
Ritu Chakravarty, M.Sc.	Scientist (SG)
Senthil Kumar, R. Ph.D.	Scientist
Sanjit Maiti, Ph.D.	Scientist
Ms. Sanchita Maiti, Ph.D.	Scientist
Parvinder Sharma, Ph.D.	CTO

Animal Biotechnology Centre

R.S. Manik, Ph.D.	I/c ABTC
P. Palta, Ph.D.	Principal Scientist
S.K. Singla, Ph.D.	Principal Scientist
M.S. Chuahan, Ph.D.	Principal Scientist
T.K. Datta, Ph.D.	Principal Scientist
S. De, Ph.D.	Principal Scientist
J. K. Kaushik, Ph.D.	Principal Scientist
A.K. Mohanty, Ph.D.	Principal Scientist
D. Malakar, Ph.D.	Principal Scientist
Rakesh Kumar, Ph.D.	Sr. Scientist
M.K. Singh, Ph.D.	Scientist
Sudarshan Kumar, Ph.D.	Scientist

Computer Centre

A.K. Sharma, Ph.D., PGDC.	In-charge
Anirudha Kumar, M.Sc.(CS)	CTO
Naresh Dahiya, M.Tech. (CSE)	STO

Krishi Vigyan Kendra

Dalip K. Gosain, Ph.D.	Head
S.K. Gupta, Ph.D.	CTO
Satya Pal, M.V.Sc.	CTO
Rajeshwar Dayal, B.Sc.	ACTO
Kulvir Singh, M.Sc.	ACTO
Mohar Singh, M.Sc.	ACTO

Experimental Dairy

Hari Ram Gupta, M.Sc. (DT)	CTO
Lehri Singh, M.Sc.	ACTO
A.K. Kohli, Dip. (Mech. Engg.)	ACTO
P. Mandal, IDD	STO
Sanjeev Kumar, M.A. (Econ.)	STO

FR & MC

Ashutosh, Ph.D.	Incharge
Magan Singh, Ph.D	Senior Sci.
Rakesh Kumar, Ph.D.	Senior Sci.
Satish Kumar, M.Sc. (Hort.)	CTO
Uttam Kumar, Ph.D.	CTO
Anil Kumar Dagar, M.Sc.	STO

Library Services

S.S. Thakur, Ph.D.	Incharge
B.P. Singh, M.Lib.	STO

Southern Regional Station, Bangalore

B.Surendra Nath, Ph.D.	Head
B. C. Ghosh, Ph.D.	Principal Scientist
B.V.Balasubramanyam, Ph.D.	Principal Scientist
P. K. Dixit, Ph.D.	Principal Scientist
K. P. Ramesha, Ph.D.	Principal Scientist
Bandla Srinivas, Ph.D.	Principal Scientist
K. Jayaraj Rao, Ph.D.	Principal Scientist
D. N. Das, Ph.D.	Principal Scientist
M. C. A. Devi, Ph.D.	Senior Scientist
S. Jeyakumar, Ph.D.	Senior Scientist
P. Heartwin Amaladhas, Ph.D.	Senior Scientist
Chitranayak, M.Tech.	Senior Scientist
M.Sivaram, Ph.D.	Senior Scientist
Menon Rekha Ravindra, Ph.D.	Senior Scientist
M. A.Kataktalware, Ph.D.	Senior Scientist
F. Magdaline E. Emerald, ME.	Scientist (SS)
Manjunatha. M., Ph.D.	Scientist
S. Varalakshmi, M.V.Sc.	Scientist

S. Subash, Ph.D	Scientist
Dr A Manimaran, Ph D.	Scientist
Mr. H C Devraj, Ph D.	Scientist
Mr Satish Kumar M H, M.Tech.	Scientist
Dr. Lakshman Naik N, Ph.D.	Scientist
P. Muruganantham, M.Lib.	CTO
V.R.V.S.Naik, MBBS, MD	CTO
B. K. Rajashekaraiah, B. Sc.	ACTO
K.L. Sampath, B.Sc.	ACTO
Veeraju, B.E.	ACTO
Siddaramanna, Ph.D.	STO
Sri. R Keshavamurthy	STO
P.G. Satish, B.V.Sc.	STO
Sri. G P Patil, B Sc.	STO
T R Thivija Kumari, M.A,B.Ed	STO
Smt. K Geethakumari	STO
Sri. K.P.Lakshminarayanappa	STO
Sri. Meghanathan	STO
Smt. Janakshi	STO
Dr. K Ningaraju, Ph D	STO
Sri. M.S.Nagarajaiah	TO
Sri Sreekanta	TO
Smt. Vimala	TO

Eastern Regionl Station, Kalyani

Tapas Kumar Dutta, Ph.D.	Head
Manoj Kumar Ghosh, Ph.D.	Principal Scientist
Subrata Kumar Das, Ph.D.	Principal Scientist
Ashok Santra, Ph.D.	Principal Scientist
Champak Bhakat, Ph.D.	Principal Scientist
Ajoy Mandal, Ph.D.	Principal Scientist
Dilip Kumar Mondal, Ph.D.	Principal Scientist
Anupam Chatterjee, Ph.D.	Principal Scientist
Mohan Mondal, Ph.D.	Sr. Scientist
M. Karunakaran, Ph.D.	Sr. Scientist
Sanchita Garai, Ph.D.	Scientist
Saroj Rai, Ph.D.	Scientist
Asif Mohammad, Ph.D.	Scientist
Rajlaxmi Behera, M.V.Sc.	Scientist
Alokesh Goswami, M.Sc.	CTO
Amitava Ghosh, M.V.Sc.	CTO
Somnath Dutta, M.V.Sc.	CTO
Prabir Saha, M.Sc.	ACTO

Glimpses of Academic Activities



Ms. Latika Bhandari Bagged 1st Prize Anveshan-2015



Convocation-2015



Convocation-2015



Dr. Sudaresan Memorial Oration



Convocation Procession-2015



Prof. Kaptan Singh Solanki delivering Chief Guest address at 13th Convocation

Glimpses of Academic Activities



Dr. Gurbachan Singh presenting Merit Certificate



Dr. Arvind Kumar presenting Merit Certificate



Prof. Kaptan Singh Solanki, Governor Haryana
Presenting Degree Certificate



Prof. Kaptan Singh Solanki, Governor Haryana
Presenting Degree Certificate



Release of Book by Dr. S. Ayyappan



Planting of sap by Dr. S. Ayyappan, Secretary
DARE & DG, ICAR

Glimpses of Academic & Sports Activities



Dr. A.K. Srivastava distributing trophy to one of the winner in NDRI Sports Meet



Deans Committee Member



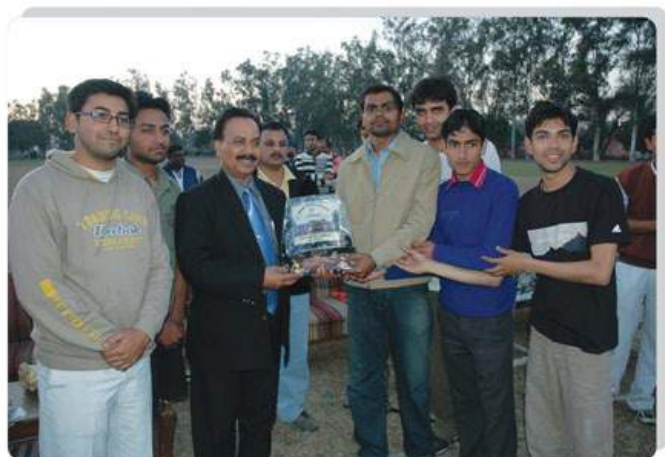
Dairy Mela at NDRI Karnal



Foreign Visitors



NDRI Sports & Cultural Events



Infrastructure at NDRI Karnal



Environmental Animal Chamber



Students accessing literature in National Library in Dairying



Ultra Modern Cattle Shed



State of the art equipment backup



Students during their in-plant training at Model Dairy Plant



A view of Milk Parlour



Students working in Computer Lab

IMPORTANT INSTRUCTIONS

1. Before submission of application form, candidates may ensure that
 - a. All the columns of application form have been duly filled in
 - b. Attested copies of all the certificates from High School or its equivalent have been attached (including annexure-VI & VII).
 - c. Attested photographs are affixed at the appropriate place in the application form and the admit card .
 - d. Admit cards have been duly filled in.
2. Incomplete application is liable to be rejected.
3. NDRI will not responsible for any postal delay.
4. Admit cards will not be sent by post. Candidates have to retain their copy of admit card with them and note down the roll No. as displayed on NDRI website.
5. Candidates are advised to visit the NDRI website to note down the roll No. on their admit cards and bring the same with them to appear in the examination.



DEWANG MEHTA
Business School Awards

23rd October, 2013

Hosted & Endorsed By
Dewang Mehta
foundation trust

NDRI Bagged Education Leadership Award-2013

NDRI as a Deemed University and a centre of excellence in frontier areas of research in dairying has been ranked at number 68 of the 100 best universities and research institutes of the country (*Careers 360*, March 2013). The University offers B.Tech Dairy Technology and Masters' and Ph.D programmes in 13 disciplines. A diploma course i.e. Diploma in Dairy Technology has also been introduced at the Southern campus, Bangalore with effect from academic session 2013-14, with a view to bring in more employment opportunities for the youth. In order to promote e-learning, e-courses have been developed for B. Tech (Dairy Technology) degree programme and have been uploaded for online delivery to various dairy colleges/institutions. The university also admits international students and during the year 2012-13, a total no. of 15 international students was on roll in different programmes. The University encourages the spirit of competition and motivation for quality research work in students by offering 'Best Thesis Award' to Master's and Doctoral students. NDRI instituted 'Best Teacher Award' for UG and PG Teaching and 'Best Divisional Award' for academic achievements and innovations in teaching in the year 2012-13. The students are encouraged to participate in extra-curricular activities such as cultural events, sport, Essay Writing, Debate and Poster Making competitions, etc for their overall personality development. In addition, the institute hosted as many as 30 training programmes/workshops/seminars and symposia to promote scientific and academic interactions and exchange of new knowledge during the 2012-13.



Directions to Candidates & Important Dates

1. Sale of information bulletin by post 22.02.2016 to 09.03.2016
 2. Sale of information bulletin at counter 22.02.2016 to 16.03.2016
 3. Incomplete/ unsigned/ mutilated application form or form without photographs or with unclear photograph/ form having overwriting/ without requisite fee amount or amount lesser than prescribed fee shall be summarily rejected and no correspondence in this regard shall be entertained. Column should not be left blank.
 4. Request for change in particulars in the application form shall not be entertained under any circumstances.
 5. Admission of a candidate to the entrance examination is provisional subject to his/ her being found otherwise eligible for admission to the course concerned.
 6. Candidates are advised to retain at least three photographs same as pasted on the form for subsequent uses during counseling/ admission.
 7. A candidate is allowed to submit only one application form, if a candidate submits more than one application form, his/her candidature shall be cancelled. Candidates for reserved categories i.e. SC/ST/PH category must attach the certificate in the prescribed format.
 8. Application form must be sent in original, duly completed in all respect. Application is to be dispatched through registered/ speed post well in advance.
 9. Last date for receipt of application forms 30.03.2016
 - Display of roll Nos. on NDRI website 30.04.2016
 - Display of list of rejected application on website 30.04.2016
 10. Institute shall not be responsible for any postal delay/ loss in transit in respect of submission of application.
 11. Candidates are advised to retain a photocopy of the application for their personal record. It may be used at any time in support of having submitted application and also retain a copy of post office receipt for dispatch through registered post or speed post.
 12. Use or attempt to use unfair means of any kind for this examination will automatically lead to the cancellation of candidature besides legal action.
 13. The records of the Ph. D entrance examination shall be preserved for a period of six months only from the last date of counseling.
 14. Date of entrance examination at all three centres i.e. NDRI, Karnal, SRS, Bandalore & ERS, Kalyani 13.05.2016
(10.00 A.M. - 12.00 noon)
 15. Last date for submitting form A by in-service candidates on or before Date of counseling
 16. Declaration of merit list for qualified candidates & display on NDRI website 3rd Week of June 2016
 17. First Counseling for admission to Ph.D. Programme (Reporting Time: 10 AM)
- Disciplines :**
- i. Dairy Microbiology, Dairy Chemistry, Dairy Technology, Dairy Engineering, Agronomy 14.07-2016
 - ii. Animal Biotechnology, Animal Genetics & Breeding, Animal Nutrition, Animal Physiology 15.07.2016
Animal Reproduction, Gynecology & Obstetrics & Food Safety & Quality Assurance.
 - iii. Livestock Production Management, Dairy Economics, Extension Education, Animal Biochemistry, 16.07.2016
18. Last date for submitting form-B by other than in-service candidates on or before 01.08.2016
 19. Date of registration for 2016-17 session 01.08.2016
 20. Display of vacant seats on NDRI website (B.Tech (DT)/ Master's and Doctoral programmes) 05-08-2016
 21. Second counseling for wait list candidates (B.Tech(DT)/ Master's and Doctoral programmes)
all disciplines for filling up of vacant seats 12.08.2016
 22. Third counseling for vacant seats in all three programmes 20.08.2016
 23. Closing date for admission 20.08.2016

Website : www.ndri.res.in