ANNUAL REPORT

(1998-99 to 2000-2001)

WEST BENGAL UNIVERSITY OF ANIMAL AND FISHERY SCIENCES

68, KSHUDIRAM BOSE SARANI
KOLKATA - 700 037

Published by :

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FOREWORD

The Annual Report of the West Bengal University of Animal & Fishery Sciences, Kolkata, is presented combining the year 1998-99 to 2000-01. Since its inception in 1995, the University has been recognised as one of the leading institution in the Eastern Region of the country, shouldering responsibilities of education and research in Veterinary, Dairy and Fishery Science, together with adopting new production technology. The future of country's economic and social development as that of State too, is largely depending upon the technological improvement in livestock, poultry and fish production. In order to achieve the recognised growth/production in the State, our research efforts have to be tailored according to the demands of the State.

It is highly encouraging that the Faculty Members/Scientists of the University have been striving war in research, extension and development to bring about new dimension in food and nutrition security. The University has come along way in generating qualified human resources through Under-graduate, Post-graduate and Ph.D. degree programme in the concerned fields. The research out-put of the University has played a significant role in changing the present scenario of the region.

Till date, 21 research projects have been sanctioned and 20 research projects proposals have been submitted to various funding agencies for sanction. In the field of extension activities, the University has been engaged to organise training programmes, seminar/workshop/ symposium and mela. The new Krishi Vigyan Kendra has been sanctioned to this University and started functioning at Ramsai, Jalpaiguri.

I take the opportunity to express my sincere thanks to ICAR, Govt. of India and State Government for providing financial assistance for effective implementation of all the University activities. I extend my warm appreciation to Deans of the Faculties, Director of Research, Extension and Farms, Faculty Members, Officers, Scientists, Staff and Students of the University for extending whole-hearted support at all stages.

Before I conclude, I am delighted to quote the deliberation of Pandit Jawaharlal Nehru in Allahabad University in 1947, saying :

"A University stands for humanism for tolerance, for the adventure of ideas and for the search for truth. It stands for the onward march of the human race towards higher objectives. Universities are places of ideals and idealism. If the Universities discharge their duties adequately, then, it is well with the nation and the people."

It is indeed, a reality that this University of ours during the last six years, has covered many milestones in its journey to attain academic perfection in all the three faculties which are vital for human resource development.

Dr. A. K. Bhattacharya
VICE-CHANCELLOR

PROLOGUE

The technological advances made during the recent period, to achieve the target of agricultural production including livestock and fisheries, are to be accelerated further to keep pace with the ever increasing demands of growing population, with the increase of food production, nutritional security is also to be achieved for balance diet of the population.

There are immence opportunities of technological break through in the fields of molecular biology, biochemistry, physiology, bio-technology, embryotechnology, information technology etc. which need to be harnessed for the welfare of the mankind.

In the era of diminishing land resources due to constant increase of human population, biotic and abiotic stresses, the need of improvement of production in Animal Husbandry and Fisheries Sector, is very pertaining and vital.

In vies of this, activities in the field of Animal Husbandry and Fisheries Sciences, are to be further emphasised to augment the productivity in the field of Livestock and Fisheries Sector. The vast majority of poor rural population are dependent on this occupation for their livelihood.

The improvement of productivity in the field Livestock and Fisheries will definitely help to the poorer section of the rural community those who live below the poverty line. To achieve these goals, sustainable resource management, diversification for farming, use of frontier areas of technological break-through, technology assessment and refinement and human resources development, should be given priority.

Human Resources Development is the critical component in the institutional building process for achieving the efficiency in technological management in livestock and fisheries sectors.

West Bengal University of Animal & Fishery Sciences has been established to fulfil these objectives, to train human resources in this field through higher education and research. Research and developmental activities alongwith the transfer of technologies are also another aspect to be looked into by this university. Since inception of this University, efforts have been made in this direction for achieving the target. With this span of time, 462 graduates in Veterinary Science, about 133 graduates in Dairy Technology and about 68 graduates in Fishery Sciences, have passed out from this University. About 182 Post-graduate students and about 33 Ph. D. Scholars have been awarded degrees by this University.

The Faculty Members in three Faculties namely — Faculty of Vety. & Animal Sciences, Faculty of Dairy Technology and Faculty of Fishery Sciences, are engaged with the devotion to achieve the targets. Annual Report gives brief account of various activities of this University, we have to accept the challenges to move forward for harnessing the benefits of scientific advances in this field in the years to come.

D. N. JANA
Registrar

PREFACE

Annual Report serves as a mirror that reflects the image of the University by focusing its overall activities performed and achievements gained. Since the inception of the University, in the year 1995, it has been devoted in imparting education, conduction both basic and applied research, and organising extension activities in the fields of Veterinary and Animal Sciences, Dairy Technology and Fishery Sciences to enhance animal productivity and fish production in the state. Though, all achievements are documented in the Annual report of the University, a need has been felt to bring together all relevant technologies and achievements in one place. In this publication, an effort has been made to present all the achievements in a lucid and comprehensive manner.

The University has three Faculties viz. Veterinary and Animal Sciences, Dairy Technology and Fishery Sciences, and One Directorate of Research, Extension and Farms alongwith other supporting units/sections. One Krishi Vigyan Kendra under the Directorate has been recently started functioning at Ramsai, Jalpaiguri with the financial grant of the Indian Council of Agricultural Research, New Delhi. In three Faculties, there exists 29 Departments consisting of 116 Faculty members who have been engaged in teaching of Undergraduate, Post– graduate and Doctoral Degree programmes of the University, and also in operating 21 on-going research projects funded by Central and state Governments, NGO's and one International Agency with fund allocation of about Rs. 4.5 crores. During the last two years, 4 Research Projects were completed, and 20 Research Projects are awaited for getting approval from the funding agencies.

The University fulfils the mandate of producing knowledge and its dissemination in the fields of education, research and extension activities through its publications. Since 1998, Faculty Members and Officers of the Directorate of Research, Extension and Farms brought-out publications. These include 214 research papers in the abstracted journals and publications in the form of book reviews, news letters, reports, popular articles and booklets.

The Faculty Members, researchers and Officers have participated in national and international seminars, symposium, workshop, conference, training programmes as resource persons, discussants, chairpersons of sessions, special invitees or paper presentators.

This Annual Report provides an over-view of our activities conducted during last three years viz. 1998-99-2000-2001. I sincerely hope that this report will be useful to Faculty Members, Researchers, Students, Staff, Administrators, Farmers and Policy Makers of the concerned or related fields. This publication will also help the University to review periodically its human resource development, research, extension and farm activities to meet the future challenges.

M. K. Bhowmik
Director of Research,
Extension and Farms. (Actg.)

Kolkata
19th December, 2001

ACKNOWLEDGEMENT

I wish to convey my deep sense of gratitude to Dr. A. K. Bhattacharya, Vice-Chancellor of the University for his valuable advice and constant inspiration for the preparation of second Annual Report of the University.

I gratefully Acknowledge the active support rendered by the Registrar, Finance Officer, and Controller of Examinations of the University, Deans of the Faculties, Secretary, Faculty Council and Faculty Members for extending help and co-operation in the preparation of Annual Report.

Sincere thakns are due to Dr. Arunasis Goswami, Assistant Director (Extention) of this Directorate for rendering all helps in preparation of the report. I am also grateful to all Officers of the Directorate for collection and compilation of the matter published in Annual Report. The assistance received from the Staff of the Directorate is thankfully acknowledged. I am sure that the Readers will find this Annual Report more informative. Comments and suggestions from the Readers will help us in improving the quality and scope of the report.

M. K. Bhowmik
Director of Research,
Extension and Farms. (Actg.)

CONTENTS

The West Bengal University of Animal and Fishery Sciences (WBUAFS) came into existence of 2nd January, 1995 through Legislative Act in order to cater to the needs of the farming community of the State of West Bengal.

During this period, the University has been recognised as one of the leading institutions of the state of West Bengal, engaged for promoting the cause of research and education in animal, dairy and fishery sciences to uplift the socio-economical status of a large section of farmers and also to overcome malnutrition of the people.

The hallmark of the University has been the development of human resource capacity to meet the requirement capable of achieving paradigm shifts in the promotion of socio-economic development of the region. The University in the process has been engaged in the strenuous task of improving the research infrastructure to develop cutting edge technologies for improved management of animal and fishery resources, disease problems, nutrients, water resources and environment. Quantum leap has occured in the improvement of research paraphernalia with the funds made available from State and Central Governments and non-government organisations.

In order to accomplish the research goals and to demonstrate the rates of return to investment, major activities of the University are carried-out in its three Faculties, Directorate of Research, Extension and Farms, Krishi Vigyan Kendra, Ramsai and sub-stations located in Midnapore district. The research systems have been able to achieve through inter-disciplinary cooperative zeal and effective mechanism and partnership to reap the benefits of biological revolution.

During the period under report, the University has set the goals to achieve its major objecctives aimed at achieving self-reliance in milk, egg, meat and fish production in the state. Substantial progress has been made during this new millennium in the areas of veterinary and animal sciences, dairy technology and fishery sciences. It has been constant endeavour of the WBUAFS to broad base its performances to achieve more out of the limited resources under expanding biotic and abiotic stresses. In order to trigger advances in various research activities University has already undertaken various research projects supported by State and Central Governments, NGO's and international agencies. The University is further marching ahead through using advance scientific technology for mitigating poverty and malnutrition of the human population in the state.

2 Mandate

The mandate of West Bengal University of Animal and Fishery Sciences are as follow :

A. To impart education in the branches of veterinary and Animal Sciences, Fishery Sciences, Dairy Technology and allied sciences.

B. To conduct basic and applied research in the field of Veterinary and Animal Sciences, Dairy Technology and Fishery Sciences for advancement of knowledge and enhancement of productivity.

C. To undertake the development of such sciences and the extension thereof to the rural people in cooperation with the concerned departments of Government of West Bengal.

3 Organisational Set up

The University operates through following authorities which are responsible for policy matters and decision making in the field of Academic, Research, Extension, Farm activities and Administration:

- Executive Council.
- Academic Council.
- Research and Extension Education Council.
- Board of Examinations.
- Finance Committee.
- Faculty council.
- Board of Studies.

The highest policy making body is the Executive council. The Vice-chancellor is the chairman of the council. The Academic Council is responsible for all issues relating to the education matters. The Academic Council in turn is supported by Faculty Council at Faculty level and Board of Studies, in the respective disciplines. Research and Extension Education Council is responsible for Research and Extension activities of the University.

Board of Examinations is responsible of conducting examinations and publication of results. The Finance Committee is responsible for financial management of the University.

LIST OF MEMBERS OF THE EXECUTIVE COUNCIL

Dr. A. K. Bhattacharya. Vice-Chancellor	Chairman (Ex-Officio)
Dr. S. K. Haldar Director of Animal Husbandry & Vety. Services. Govt. of West Bengal	Member (Ex-Officio)
Dilip Kr. Ghosal Director of Fisheries Govt. of West Bengal.	—Do—
Sri Kamal Kumar Ghosal Milk Commissioner. Govt. of West Bengal.	—Do—
Dr. D. P. Banerjee Dean, F\o Vety. & Animal Scs. WBUAFS.	—Do—
Dr. A. K. Bandyopadhay Dean, F\o Dairy Technology (Actg.) WBUAFS	—Do—
Dr. K. C. Dora Dean, F/o Fishery Scs. (Actg.) WBUAFS	—Do—
Dr. M. K. Bhowmik Director of Research, Extension & Farms (Actg.)	—Do—
Dr. P. Biswas Reader, Deptt. Of Animal Nutrition (Teachers' Representative, F/o, Vety. & Animal Scs) WBUAFS	Elected Member
Sri S. K. Sarkar Reader, Deptt. Of Dairy Engineering (Teachers' Representative, F/o. Diary Technology) WBUAFS	—Do—

Dr. B. K. Das Lecturer, Deptt. Of Oceanography & Limnology (Teachers' Representative, F/o. Fishery Science) WBUAFS	Elected Member
Sri K. B. Bhattacharjee Record Keeper (Non-teaching) Staff Representative) WBUAFS.	—Do—
Vacant (Students' Representative) WBUAFS.	—Do—
Sri Bhadreswar Mandal (M.L.A. Representative W. B. Legislative Assembly)	Member
Dr. S. K. Roy Prof. & Head, Deptt. Of Vety. Medicine, Orissa Vety. College, Bhubaneswar. (Representative of Vety. Council of India, New Delhi)	Nominated Member
Sri Shibadas Bhattacharjee (Representative from Farmers or Producers, nominated by Govt. of West Bengal).	—Do—
Sri Pitabasan Das (Representative from Farmers or Producers, nominated by govt of West Bengal)	—Do—
Sri Anil Patra (Representative from Farmers or Producers, nominated by Govt. of West Bengal)	—Do—
Dr. Lal Krishna Asstt. Director General (A. H.) I.C.A.R. (Representative of I.C.A.R.)	—Do—
Dr. D. N. Jana Registrar	Ex-officio Non-member Secretary

OF MEMBERS OF THE FACULTY COUNCILS

A. FACULTY OF VETY. & ANIMAL SCIENCES

1.	Dr. A. K. Bhattacharya Vice-Chancellor.	Chairman
2.	Dr. D. N. Jana, Registrar.	Member
3.	Dr. D. P. Banerjee, Dean, F/VAS.	—Do—
4.	Dr. M. K. Bhowmik DREF (Actg.).	—Do—
5.	Librarian.	—Do—
6.	Controller of Exam.	Invitee member
7.	Head Deptt. of Vety. Anatomy, Histology & Embryology.	Member
8.	Head Deptt. of Vety. Pathology.	—Do—
9.	Head Deptt. of Vety. Bio-Chemistry.	—Do—
10.	Head Deptt. of Animal Nutrition.	—Do—
11.	Head Deptt. of Vety. Pharmacology & Toxicology.	—Do—
12.	Head Deptt. of Vety. Physiology.	—Do—
13.	Head Deptt. of Vety. Parasitology.	—Do—
14.	Head Deptt. of Animal Genetics & Breeding.	—Do—
15.	Head Deptt. of Vety. Medicine, Ethics & Jurisprudence.	—Do—
16.	Head Deptt. of Vety. Epidemiology & Preventive Medicine.	—Do—
17.	Head Deptt of Vety Public Health.	—Do—
18.	Head Deptt. of Animal Production & Management.	—Do—
19.	Head Deptt. of Animal Products Technology & Marketing.	—Do—
20.	Head Deptt. of Vety. Gynaecology & obstretics.	—Do—
21.	Head Deptt. of Vety surgery & Radiology.	—Do—
22.	Head Deptt. of Vety. & Animal Husbandry Extn. Education.	—Do—
23.	Head, Deptt. of Vety. Microbiology.	—Do—
24.	Prof. B. B. Ghosh. Deptt. of Vety. gynaecology & obstretics.	Elected member (Professor)

25. Dr. A. K. Samanta, Lecturer APM.	Elected member (Lecturer)
26. U. G. Student.	Elected Member
27. P. G. Student.	—Do—
28. Sri A. K. Chakraborty, Secretary, Faculty Council.	Ex-officio Secretary

B. FACULTY OF FISHERY SCIENCES

1. Dr. A. K. Bhattacharya, vice-chancellor	Chairman
2. Dr. D. N. Jana, Registrar	Member
3. Dr. K. C. Dora, Dean, F/F, Sc. (Actg.)	—Do—
4. Dr. M. K. Bhowmik, DREF (Actg.)	—Do—
5. Librarian	—Do—
6. Controller of Exam.	Invitee Member
7. Head, Deptt. of Fishery Biology & Basic Sciences	Member
8. Head, Deptt. of Aquaculture	—Do—
9. Head, Deptt. of Fishery oceanography & Limnology.	—Do—
10. Head, Deptt. of Fishery Engg.	—Do—
11. Head, Deptt. of Fish Processing Technology	—Do—
12. Head, Deptt. of Fishery Pathology	—Do—
13. Head, Deptt. of Fishery Economics. Statistics & Marketing.	—Do—
14. Head, Deptt. of Fishery Extn. & Basic Education	—Do—
15. Porf. K. C. Dora, Deptt. of Fish Processing Technology	Elected member (Professor)
16. Dr. S. S. Dana, Reader, Deptt. of Fishery Extn. & Basic Education	Elected member (Reader)
17. Sri Srikanta Sarkar, Lecturer, Deptt. of Fish Processing Tech.	Elected member (Lecturer)
18. U. G. Student	Elected Member
19. P. G. Student	—Do—
20. Sri A. K. Chakraborty, Secretary, Faculty Council	Ex-Officio Secretary

C. FACULTY OF DAIRY TECHNOLOGY

1.	Dr. A. K. Bhattacharya, vice-chancellor	Chairman
2.	Dr. D. N. Jana, Registrar	Member
3.	Dr. A. K. Bandyopadhay, Dean, F/o D. Tech. (Actg.)	—Do—
4.	Dr. M. K. Bhowmik, DREF (Actg.)	—Do—
5.	Librarian	—Do—
6.	Controller of Exam.	Invitee Member
7.	Head Deptt. of Dairy Chemistry	Member
8.	Head Deptt. of Dairy Engg.	—Do—
9.	Head Deptt. of Dairy Bacteriology	—Do—
10.	Head Deptt of Dairy Technology.	—Do—
11.	Prof. M. Sanyal, Deptt. of Dairy Technology.	Elected member (Professor)
12.	Dr. D. C. Sen, Reader, Deptt. of Dairy Tech.	Elected member (Reader)
13.	Dr. T. K. Maity, Lecturer, Deptt. of Dairy Bact.	Elected member (Lecturer)
14.	U. G. Student	Elected Member
15.	P. G. Student	—Do—
16.	Sri A. K. Chakraborty, Secretary, Faculty Council.	Ex-officio Member Secretary

LIST OF THE DEANS OF FACULTIES

Dr. D. P. Banerjee	Dean, F/o. Veterinary & Animal Sciences.
Dr. A. K. Bandyopadhay	Dean, F/o. Dairy Technology (Actg.)
Dr. K. C. Dora	Dean, F/o. Fishery Sciences (Actg.)

LIST OF THE OFFICERS OF THE UNIVERSITY

Dr. A. K. Bhattacharya
Vice- Chancellor

Dr. D. N. Jana
Registrar

Dr. M. K. Bhowmik
Director of Research, Extension & Farms. (Actg.)

Dr. D. P. Banerjee
Dean, F/o. Vety. & Animal Sciences

Dr. A. K. Bandyopadhya
Dean, F/o. Dairy Technology (Actg.)

D. K. C. Dora
Dean. F/o. Fishery Sciences (Actg.)

Sri S. Sarkar
Controller of Examinations (Actg.)

Sri B. K. Kundu
Finance Officer

5 Organisational Structure

Chancellor

↓

Vice-Chancellor

↓

Registrar	Dir. Res. Extn. & Farms	Finance Officer	Controller of Examinations	Dean of the Faculties
↓	↓	↓	↓	↓
a. Establishment	a. Research	a. Accounts	a. Admission	
b. Security	b. Extension	b. Audits	b. Examination	
c. General Administration	c. Farms			

Dean, F/o Vety. & Animal. Scs.

↓

Departments :—

1. Vety, Anatomy, Histology & Embryology
2. Vety. Pathology
3. Vety. Bio-chemistry
4. Animal Nutrition
5. Vety. Pharmacology & Toxicology
6. Vety. Physiology
7. Vety. Microbiology
8. Vety. Parasitology
9. Animal Genetics & Breeding
10. Clinical Vety. Medicine, Ethics and Jurisprudence
11. Vety. Epidemiology & Preventive medicine
12. Vety. Public Health.
13. Animal Production Management
14. Animal Products Technology & Marketing
15. Vety. Gynaecology & obstetrics
16. Vety. Surgery & Radiology
17. Vety. and Animal Husbandry Extension Education.

Dean, F/o Dairy Technology

↓

Departments :—

1. Dairy Bacteriology
2. Dairy Technology
3. Dairy Engineering
4. Dairy Chemistry

Dean, F/o Fishery Scs.

↓

Departments :—

1. Fish Biology
2. Aquaculture
3. Fish Oceanography & Limnology
4. Fish Pathology
5. Fish Processing Technology
6. Fish Engineering
7. Fishery Economics, Statistics & Marketing
8. Fishery Extension & Basic Education

6 Staff Position

University Officers	8
Faculty Members	116
Ministerial Staff	45
Technical Assistants	9
Supporting Staff	131

7 Academic Programmes

West Bengal University of Animal and Fishery Sciences teaches following courses and awards degree as mentioned below :—

A. Faculty of Veterinary and Animal Sciences

(i) B. V. Sc. & A. H. — 5 years Integrated Course

(ii) M. V. Sc. — 2 years P. G. Course

(iii) Ph. D. — 3 years Doctoral Course

B. Faculty of Dairy Technology

(i) B. Tech. (DT) — 4 years Integrated Course

(ii) M. Tech. (DT) — 2 years P.G. Course.

(iii) Ph. D — 3 years Doctoral Course

C. Faculty of Fishery Sciences

(i) B. F. Sc. — 4 years Integrated Course

(ii) M. F. Sc. — 2 years P.G. Course

8 Admission

The detailed annual intake in various academic programmes are given below :—

Faculty of Veterinary & Animal Sciences :

	1998-99	1999-2000	2000-2001
B. V. Sc. & A.H.	96	92	104
M. V. Sc.	64	69	71
Ph. D.	11	45	–

Faculty of Dairy Technology :

B. Tech. (DT)	27	16	24
M. Tech. (DT)	16	19	19
Ph. D	2	2	–

Faculty of Fishery Sciences :

B. F. Sc.	26	24	28
M. F. Sc.	–	20	21

9 Results

Name of the Degree	Degree Completed		
	1998–99	1999–2000	2000–2001
1. B. V. Sc. & A.H.	76	80	78
2. B. Tech. (DT)	19	25	21
3. B. F. Sc.	–	19	18
4. M. V. Sc.	47	58	60
5. M. Tech. (DT)	7	4	10
6. M. F. Sc.	–	–	–
7. Ph. D.	13	1	5

10 Central Library

The Central Library of this university is at present developed in two prime academic locations, one at Mohonpur campus and the other at Belgachia campus. Both the set-up is accessible easily from all departments on foot. The construction of new Central Library building is in full progress at the Belgachia (Kolkata) campus.

The library remains open from 10 A.M. to 7 P.M. on all working days round the year except for 15 days during summer vacation when also the library is kept open to 2 P.M. for the benefit of the users.

The library has collection of about 0.25 lakh which includes books, periodicals, serials and non-book materials. The collection is housed subject-wise under three major streams, viz. Veterinary Science, Dairy Technology and Fishery Science.

About 200 titles of books, 115 Indian journals and 15 foreign journals are included every year. But the foreign journals are subscribed depending upon the availability of ICAR Grant. The library is also holding some leading newspaper (both Bengali and English).

SERVICES :

The library is providing the following services.

1. Reference desks are provided.
2. Membership and issue-return service are available. It will be shortly done by computerization.
3. Inter-library loan facility is available.
4. Text books on respective discipline are centralised.
5. Documentation service on computer is available.
6. Cataloguing on computer is going on.

SPECIAL SERVICE :

1. Book Bank lending facility for under-graduate students in term basis is available against rental charge.
2. E-mail / internet access facility is available.
3. 'Search' is available via E-mail from Indian Network of University libraries through INFLIBNET.
4. 'Search' of databases on CD ROM for three streams are available.
5. Xerox facility managed by the library is available on payment basis.

Sri Narayan Rupini, Minister of Animal Husbandry, Govt. of Tripura is addressing in the Refresher Course organised by D. R. E. F., WBUAFS.

Sri Anisur Rahaman MIC (ARD), Govt. of W. B. is addressing in the Refresher Course organised by West Bengal University of Animal and Fishery Sciences.

Sri Anisur Rahaman MIC (ARD), Govt. of W. B. is releasing University News Letter.

Inaugural function of workshop on Farm Journalism organised by Directorate of Research, Extension & Farms. Dr. D. N. Jana, Registrar, Dr. S. K. Haldar, Director (ARD), Govt. of W. B., Sri Anisur Rahaman, MIC (ARD), W. B., Dr. A. K. Bhattacharya, Vice-Chancellor, Dr. T. K. Roy, Former Pr. Director (ARD), W. B. and Sri K. K. Ghosal, Milk Commissioner, W. B. are sitting on the stage.

Sri Viren J. Shah, Chancellor is opening the Girls' Hostel at Mohanpur Campus in presence of Sri Kiranmoy Nanda, MIC (Fisheries), Govt. of W. B. Sri Anisur Rahaman, MIC (ARD), Govt. of W. B. and Dr. A. K. Bhattacharya, Vice-Chancellor, WBUAFS.

Sri Jyoti Basu, Former Chief Minister of West Bengal is receiving bouquet from Dr. A. K. Bhattacharya, Vice-Chancellor during his visit at University.

Sri Viren J. Shah, Chancellor releasing University Publication

Sri Mahboob Zahedi, Member of Parliament is addressing in the Women's Workshop organised by Directorate of Research, Extension & Farms, WBUAFS.

Dairy farm at K. V. K. Ramsai, Jalpaiguri.

Farmer is in the process of urea-straw-mola mixture preparation under IVLP at Midnapore.

Glimpses of Ramsai fodder farm.

IMC cultivation in village canal under the super of West Bengal University of Animal and Fi Sciences.

Dr. A. K. Bhattacharya, Vice-Chancellor is laying foundation stone of Rural Extn. Centre at Basantapur Jhareswar Bani Mandir, Midnapore.

Dr. M. K. Bhowmik, DREF (acting) is addressing in training programme at Bhurkunda in North 24-Pgs.

Dr. A. K. Bhattacharya, Vice-Chancellor is observing prawn larval rearing tank at Midnapore.

Villagers are drawing the village map after servey through PRA technique at Barua, Midnapore.

(11) Brief Progress of the Faculties

A. Faculty of Veterinary and Animal Sciences

Under West Bengal University of Animal and Fishery Sciences the Faculty of Veterinary and Animal Sciences is presently located at two campus at Belgachia (Kolkata) and Mohanpur (Nadia). The Undergraduate (B. V. Sc. & A. H.) teaching currently exist at Belgachia and Post-graduate (M. V. Sc & Ph. D.) teaching at Belgachia and Mohanpur campus. The Mandate of the faculty includes :

(a) Under-graduate and Post-graduate teaching in Various disciplines of veterinary and Animal Sciences by its existing **seventeen** teaching departments.

(b) Research activities at M. V. Sc. & Ph. D. levels and through network and ad-hoc research projects.

(c) Extension activities through the participation of Faculty Teachers and Students.

Modernisation of Laboratory facilities for Under-graduate and Post-graduate Studies and Research activities have been accomplished by the Teaching Departments with financial support from ICAR development grant. In order to provide more space for expansion of Laboratory activities of the Teaching Departments, Renovation and Modernisation of the vacant space adjacent to the departments have been undertaken. Modernisation of the Veterinary Hospital, particularly the Dog ward has given a new shape and get-up for the benefit of the Livestock owners and students of the faculty. A Medical unit has been opened in the faculty by engaging visiting physicians for rendering treatment facility to the faculty members and students.

The Faculty has already introduced an Instrumentation Centre where all bio-chemical tests have been conducted.

The Faculty has initiated Centre for Bio-technological Research alongwith the establishment of Diagnostic Laboratory for Livestock, Poultry and wildlife diseases.

The Faculty has been taken up short-term programmes for strengthening of the academic set-up of the faculty in near future by creating mew teaching departments in Poultry Science and Wild Life science. The Faculty has opened P. G. Programme on Animal Products Technology & Marketing under the Concerned Deptt.

B. Faculty of Dairy Technology

Presently the Faculty of Dairy Technology is the only institute in Eastern India providing Dairy Technology education in under-graduate and post-graduate levels. At present there are four Teaching departments in the Faculty to cater the teaching and research programme. The education and research activities are conducted at Mohanpur campus. Research activites of the Faculty are being carried out by M. Sc. & Ph. D. projects, research projects financed by University and also through ad-hoc and network research projects sponsored by ICAR and other agencies.

Modernisation of classroom and laboratory facilities for U.G. and P.G. and Research activities have been done by the Teaching departments with financial support from ICAR development grant. Dairy plant for students' practical teaching is in progress for which State Govt. has sanctioned the fund.

The Faculy has proposed to create two new departments, namely, Deptt. of Food Science and Deptt. of Management, Economics & Statistics.

C. Faculty of Fishery Sciences

The Faculty of Fishery Sciences has been established under West Bengal University of Animal and Fishery Sciences in the year 1995 to achieve goal of Human Resources Development for increasing fish production and judicious management of vast natural resources in the State.

At present U.G. and P.G. courses are undergoing in the Faculty. The Faculty has already been started functioning in the annexe building of the then Medicine building of the F/O Vety. and Anim. Scs., Mohanpur campus of the University.

Interaction between the Faculty and the Deptt. of Fisheries, Govt. of West Bengal is one of the regular affairs of the Faculty for transfer of technologies on need based areas. The Faculty is also offering advisory services on design and construction of Fish Shrimp Farms and Hatchery Management, Fish Processing Technology, Water Quality Management etc.

Faculty library facility has been created and is being reinforced with new acquisition of books every year. Laboratories are equipped with modern equipments. Computer facilities are also available in the Faculty.

The faculty members and students are engaged in organising seminar, workshop etc. regularly.

12 Student Facilities

- About 1200 students are studying in different streams for their Graduation, Post-Graduation and Doctorate Degree in three faculties.
- There are five hostels at Kolkata and Four hostels at Mohanpur campus for providing residential facilities to the students including ladies and P.G. students.
- Clean water supply through Aquaguards, telephone, Television set, sports facilities are provided to all students.
- Students are provided All India Tour facilities in relation to their studies.

RESEARCH

A. RESEARCH PROJECTS COMPLETED

Sl. No.	Title of the Project	Funding Agency	P.I.	Deptt.	Faculty	Fund Sanctioned
1	Effect of some pesticides on Oxidative Phosphorylation and Mixed Function Oxidase system in different animals.	ICAR	Dr. A. K. Chakraborty	Pharmacology & Toxicology	VAS	11,23,442
2	Computer Managed maintenance System for Integrated Dairies.	ICAR	Dr. B. Malakar	D. Engg.	DT	12,87,400
3	Autecology of Hog Deer (Axis pornicus) in protected areas of sub-Himalayan West Bengal	WWF, USA	Dr. M. K. Bhowmik	Pathology	VAS	US $ 10,000
4	Centrally sponsored Scheme - "Assistance to States for Integrated Piggery Development".	GOVT. OF INDIA	Dr. S. P. Roy	Research wing	DREF	12,90,000

B. ON-GOING RESEARCH PROJECTS

Sl. No.	Title of the Project	Funding Agency	P.I.	Deptt.	Faculty	Func Sanctioned
1	All India Co-ordinated Research Project on Black Bengal goat improvement	ICAR	Dr. S. K. Mishra	Animal Genetics & Breeding	VAS	33,08,000
2	Micronutrients in Animal Nutrition and Production (Network Project)	ICAR	Head	Animal Nutrition	VAS	72,89,000

3	Gastro-intestinal parasitism (Network Project)	ICAR	Dr. J.D. Ghosh	Parasitology	VAS	23,80,000
4	Blue Tongue Disease (Network Project)	ICAR	Dr. A. Chakraborty	Vety. Medicine, Ethics & Jurisprudence	VAS	12,70,000
5	R and D support for process upgradation of Products for Industrial Application (Network Project)	ICAR	Dr. S. R.Chakraborty	Dairy Chem.	DT	29,20,000
6	Survey evaluation of Garole Sheep in Surderban area of West Bengal (Adhoc Project)	ICAR	Dr. S. Pan	Animal Prod. & Management	VAS	28,51,640
7	Efficacy and Stress of Chemo Surgery and Chemosterilisation in large and small animals with a new chemosterilising agent (Adhoc Project).	ICAR	Dr. P. K.Samanta	Surgery & Radiology	VAS	8,03,920
8	Improvement and conservation of "GHOONGROO" pig and popularisation of Ghoongroo production in Dooars Valley of West Bengal (Adhoc Project).	GOVT. OF INDIA	Dr. S. Pan	Animal Prod. & Management	VAS	9,75,000
9	Comparative study on the seasonality of bio-environment of protected and unprotected forests areas in Eastern Himalayan Region with special reference to Wild Herbivores (EFN Project).	WWF, USA	Dr. S. Pan	Animal Prod. & Management	VAS	US $ 10 000
10	Diagnosis of parasitic diseases of domesticated animals (National Agri-Technological Programmes (NATP).	ICAR	Dr. C. K. Dasgupta	Parasitology	VAS	25,70,000

11	Shrimp and Fish Health Management (SFHM) (NATP).	ICAR	Dr. T. J. Abraham	Fish Pathology	Fishery Science	11,96,000
12	Animal Genetic Resource bio-diversity — characterisation and conservation of Garole sheep and Black Bengal Goat (NATP).	ICAR	Dr. A. K. Sahoo	Animal Genetics & Breeding	VAS	31,92,000
13	Integrated management through fish, duck and pig culture in rice farming system (NATP).	ICAR	Dr. T. K. Ghosh	Aquaculture	Fishery Science	19,06,000
14	On urban and peri-urban system of milk production through use of concentrate based feeding system (NATP).	ICAR	Dr. Barun Roy	Animal Nutrition	VAS	20,92,000
15	Institute Village Linkage Programme (IVLP) of Coastal Agro-ecosystem in Midnapore (NATP).	ICAR	Dr. A. Goswami	Extension wing	DREF	28,90,000
16	Weather Based Animal Disease Forecast (NATP)	ICAR	Dr. A. Paramanik	Prev. Vety. Medicine	VAS	3,96,525
17	Use of Pro-Biotics in Freshwater Aquaculture (Adhoc Project)	ICAR	Dr. T. J. Abraham	Fish. Pathology	Fishery Science	12,72,616
18	Value Addition of Low Cost underutilized marine fishes of West Bengal	Ministry of Agriculture Govt. of India	Sri Sreekanta Sarkar	FPT	Fishery Science	31,44,000
19	Processing of Pork, broiler & eggs. (NATP).	ICAR	Dr. S. Biswas	APTM	VAS	16,00,052

C. PROJECT PROPOSAL SUBMITTED TO ICAR

	Name of the Project	Addressed to whom despatched and date	Principal Investigator	Faculty
1.	An integrated approach of Nutritional bio-energetic and eco-technological management for developing cost effective eco-friendly pellet feed for Anabas Testudineus in enclosure production system. (F. No. 4-6 / 2001-ASRI) received on 7-2-2001.)	DDG (FY) ICAR, Krishi Bhavan, ND.1	Dr. S. K. Das, Lectr., Deptt. of Fish Biology.	F/Fish Science
2.	Bovine Tuberculosis and its zoonotic pattern.	Dr. Lal Krishna, ADG, ICAR (Anim. Hlth), Krishi Bhavan, New Delhi-1	Dr. Samar Sarkar, Head, Deptt. of Medicine & Pub. Health.	F/Vety. Anim. Science.
3.	Utilisation of spent hen carcases and less important parts of Broiler for production of value added poultry products.	Director, Deptt. of Food Processing Industries, Min. of Agri., Govt. of India, New Delhi-49	Dr. S. Biswas, Head, Deptt. of APTM	F/Vety. Anim. Science
4.	Studies on possible causes of calf mortality with special reference to rotaviral diarrhoea.	DDG (Anim. Science), ICAR, Krishi Bhavan, New Delhi-I	Dr. Samar Sarkar, Head, Deptt. of Medicine & Pub. Health.	F / Vety. Anim. Science.

5.	Studies on the usefulness of Foot and Mouth disease cultivated in bovine tongue epithelium for the production of inactivated vaccine.	Scientist–Incharge, Project Registry Cell, Deptt. of Bio–Technology, Govt. of India, Block–2 7th floor, CGO Complex, Lodhi Road, New Delhi–13	Dr. (Mrs.) Ratna Das, Head, Deptt. of Micro–biology.	F / Vety. Anim. Sci
6.	Environmental Impact Assessment of Coastal Aquaculture in West Bengal : Coastal Aquatic Biodiversity and Demographic Profiles.	DDG (Fishery), ICAR, Krishi Bhavan, New Delhi–1	Dr. S. K. Das, Lectr. Deptt. of Aqua–culture.	F / Fishery Science.
7.	Organochlorine Pesticide Residues in Milk and Milk Products.	Dr. Sushil Kumar, ADG (AP & Dairying), ICAR, Krishi Bhavan, New Delhi–1	Dr. P. K. Ghatak, Reader & Head, Deptt. of Dairy Chemistry.	F / Dairy Technology
8.	Standardisation and propagation of low cost indigenous techno–logies for drying of fish in West Bengal.	Director, Deptt. of Food Processing Industries, Min. of Agril., Panchsheel Bhavan, August Kranti Marg, New Delhi–49	Sri B. K. Chand, Farm Manager,	DREF
9.	Survey of Psychotrophic spore–formers in milk, its rapid evaluation and control.	ADG (APT & D), ICAR, Krishi Bhavan, New Delhi–1	Dr. A. K. Misra, Reader & Head, Deptt. of Dairy Bacteriology.	F / DT
10.	Composition of milk of cross bred cows in different milk sheds areas of West Bengal.	–do–	Dr. P. K. Ghatak, Reader & Head, Deptt. of Dairy Chemistry.	F / DT
11.	Bio-monitoring as a Tool to Assess Impact of Toxic heavy metal in the coastal environment of West Bengal.	Secretary, Deptt. of Ocean Development, Govt. of India, Mahasagar Bhavan, CGO Complex, Lodhi Road, Block–12, New Delhi–3	Dr. B. K. Das, Lectr. Deptt. of Fish Oceanography & Limnology.	F / Fishery

12.	A study on immunological infertility in dairy cow.	Secretary, ICAR, Krishi Bhavan, ND	Prof. B. N. Roy. Deptt. of Vety. Physiology & Bio–	F / Vety.Anim.Sci.
13.	Cadmium & Chromium pollution in Sewage-fed fisheries of Calcutta	DDG (Fishery), ICAR, Krishi Bhavan, New Delhi–1	Dr. (Mrs.) S. Das. Scientist, DREF.	DREF
14.	Prevalence of Mycotoxin in Animal feeds and its remedial measures in Eastern India.	Secretary, ICAR, New Delhi–1	Dr. G. Samanta, Reader, Deptt. of Anim. Nutrition,	F / c.. of Vety. & Anim. Sci.
15.	Osteological study on the axial and appendicular skeleton and anatomical study on the organs of urinary system in Asian Elephant (Elephas maximus).	Mr. P. R. Sinha, IES, Member Secretary, Central Zoo Authority, Min. of Environment & Forest, Govt. of India, Bikanir House Annexe–4, Sahajahan Road, New Delhi–110 011	Prof. R. K. Ghosh, Anatomy,	F / c. Vety. & Anim. Sci
16.	Technological investigation into development of meat product from duck.	Dr. Sushil Kumar, ADG (D & APT), Krishi Bhavan, Dr. Rajendra Prasad Road, N. Delhi–110 011	Dr. S. Biswas, APTM.	–do–
17.	Studies on deep–freezing of bull and buffaloe semen in relation to fertility to breeding value for milk yield.	Secretary, ICAR, Krishi Bhavan, New Delhi–1	Prof. S. K. Bandyopadhyay, Deptt. of Gynaecology & Obstetrics.	–do–
18.	Resource potentiality & Nutritional value of rumen content from slaughter houses as a substitute feed for livestock in the State of West Bengal.	Secretary, ICAR, New Delhi–I	Dr. T. K. Ghosh, Reader, Deptt. of Anim. Nutrition.	–do–

EXTENSION

A. Seminar/Work

1. Seminar on "Transfer of Technology in the field of Livestock and Fishery Sciences" at the Sisir Mancha, Calcutta on May, 1998.
2. Workshop on "Technology Transfer in the field of Livestock and Fishery Sciences" at MPDS, Midnapore on February, 1998.
3. Seminar on "Awareness Programme on the Relevance of Renewable Energy" at Mohanpur in the year 1998.
4. Workshop on "Awareness Programme on Animal Husbandry and Fishery Sectors" for the Teachers and M.C. Members at Basantapur School, Midnapore in the year 1999. The participants present in the workshop was 55.
5. Workshop on "Awareness Programme on Animal Husbandry and Fishery Sectors" for Panchayet and H.S. Students at Basantapur School, Midnapore on September, 1999. 560 participants were present..
6. Workshop on "Collection and Preservation of Pituitary gland from fish and preparation of extract" at Mohanpur on March, 1999. 35 participants were present.
7. Workshop on "Nursery, rearing and stocking management of IMC and Exotic carps for table sized fish production" at Mohanpur on August, 1999. 38 participants were present.
8. Workshop on "Current and Emerging trends in fish processing technology" at Mohanpur on June, 2000. 45 participants were present.
9. Workshop on "Role of Farm Journal in Technology Transfer to enhance animal productivity" at Belgachia on March, 1999. 48 participants were present.
10. Workshop on "Role of Women in Livestock and Fishery Sectors" at Belgachia on September, 2000.

B Training

1. Training on "Awareness Programme on Livestock and Fishery Sectors" at MPDS, Barua on November, 1999. 60 participants were present.
2. Training on "House Dairying" at Ramsai Farm, Jalpaiguri on June, 2000. 18 participants were present.

3. Training on "Integrated Piggery Development" at Mohanpur on October, 1998. Participants were 32.

4. Training on "Integrated Piggery Development" at Mohanpur on 1999. Participants were 38.

5. Training on "Integrated Piggery Development" at Mohanpur on June, 2000. Participants were 35.

6. Training on "Integrated Piggery Development" at Ramsai, Jalpaiguri on 4-11 June, 2001. Participants were 90.

C. Refresher Course

1. Refresher Course on "Advances in Livestock Production and Management" at Belgachia on March, 2000. Participants were 25.

D. Publication

1. Leaflet in Bengali (Many in number).
2. Annual Report.
3. At a glance.
4. News Letter.
5. Compendium on Refresher Courses.

E. Mela

1. Participated in Vidyasagar Mela at Calcutta in 1998, 1999 & 2000.
2. Participated in Satyen Bose Mela at Khudra Mohanpur in 1998.
3. Participated in Krishimela at Coochbihar in 2001.

The Directorate of this University participated in the Mela with a view to popularise the activities and objectives of this Directorate with the help of Charts, Posters, Models, Specimen, Literature, Festoon, Display Board etc. alongwith VIDEO FILM and AQUARIAM related to livestock and fishery sectors. In the Mela, experts from the University were engaged everyday to discuss the technical matter with the public gathered in the stall.

F. Film

1. Documentary Film on "GOBADI" for 62 minutes.
2. VIDEO Recording of Women Workshop.
3. VIDEO Recording of Inaugural Programme of Ramsai Farm.

G. Extension Centre

1. Inauguration of District Rural Extension Centre at Barua, Midnapore.
2. Inauguration of Rural Extension Centre at Basantapur, Midnapore.
3. Inauguration of Ramsai K.V.K., Jalpaiguri.
4. Rural Extension Centre at Balughata, Haldia, Midnapore (Proposed).
5. Rural Extension Centre, Orgram, Burdwan (Proposed).

H. Adoption of Model Village

1. Adopted One Model Village (Sonatikari) under Barasat–II Block, North 24 Pgs.

I. Installation

1. Installed A.V. Labs.
2. Installed E-Mail.
3. Installed Internet Connection.
4. Installed Computer Centre at Mohanpur and Belgachia.
5. Installed Website at Belgachia.

J. Participation

1. Participated in 'Prani Sampad Saptaha' of Department of ARD, Govt. of West Bengal.
2. Participated in Scientific Sub–Committee of National Symposium of the Re-Union of B.V.C., B.C.K.V. and WBUAFS on January, 2000.
3. Participated in Haldia Utsab.
4. Participated in the National Conference of Aquaculture.

K. Project

1. The Extension Wing is running IVLP Project of NATP under ICAR at Barua, Midnapore.

L. Assistance

1. The Extension Wing assists in different departments of Teaching Faculty of this University of providing A.V. aid facilities.

FARMS

Piggery Farm

This Directorate has been established One good Model Piggery Farm at Mohanpur Campus with a bio-gas plant under Centrally sponsored Scheme of Assistance to State for Integrated Piggery Development, for training and demonstration of rural people and distribution of piglets to the poor farmers, co-operative society, etc. and also conducting academic, research, training programme of UG, PG and Doctoral level of the faculty.

Quail Farm

One Quail Demonstration Unit is under progress at Mohanpur and Belgachia Campuses and other Extension Centres of the University. This Unit is also conducting the academic and research programme of UG and PG level of the faculty.

Turkey Farm

A Turkey Unit has also been newly introduced at Belgachia and Mohanpur Campuses of the University and this Unit is under progress.

Duck-Cum-Fish Farming

This Directorate has also established a Duck-cum-Fish Farming Unit at Belgachia Campus. This Unit has exclusively used for academic, research, demonstration for UG and PG level of the faculties as well as the farmers of different districts of the state.

Prawn Hatchery

A Prawn Hatchery Unit has been established by the Directorate under Midnapore Planning and Development Society, Barua and the Prawn seeds are to be distributed to the farmers of that area.

Activity of the Ramsai Farm at Jalpaiguri

After taken-over the charge of the Ramsai Farm, Jalpaiguri on 1-11-1999 from ARD Department, Government of West Bengal the University has tried to utilise the all infrastructural facilities of the said farm. For better utilisation of infrastructure of the said farm, it needs further review of the over-all development in totality. In the existing area of the farm, the 10% is covered with office, Residential Quarters, Livestock Farms, Wetlands, 30% of land with wanted and unwanted forests, 20% barren and 30% land for animal feed and fodder and 2% land as road and allied purposes and the balance portion is used in different works. The farm also consists of Pig Unit, Duck Unit, Poultry Unit, Cattle Shed, Buffalo Shed, Fish Pond. There is also infrastructural facilities for Training Programmes.

However, this farm will help to improve the socio-economic status of the backward calsses of the North Bengal, particularly the district of Jalpaiguri.

WEST BENGAL UNIVERSITY OF ANIMAL AND FISHERY SCIENCES

37 & 68, Kshudiram Bose Sarani , Kolkata- 700 037.

BUDGET ESTIMATE FOR 1998 -1999 TO 2000 - 2001.

Head of Account	1998-1999	1999-2000	2000-2001
Opening Balance	25,13,000	44,03,000	39,03,000
(a) University Fund (a)	9,90,000	13,10,000	13,82,000
(b) Grant in aid	3,54,00,000	4,54,00,000	6,40,00,000
State Plan Asst.	25,00,000	85,00,000	35,00,000
State Plan Capital Exp.	67,50,000	2,90,00,000	2,50,00,000
ICAR Grant (SUA/CATCH UP FUND)	105,00,000	1,65,00,000	3,50,00,000
Scheme/Project Fund	29,30,000	50,00,000	50,00,000
Grant/Assistances from sources including donation and Gift)	13,20,000	1,00,000	1,00,000
Total (b)	5,94,00,000	10,45,00,000	13,26,00,000
(c) Other Accounts:-			
Sundry Deposit Loan and Advances	12,00,000	12,50,000	12,00,000
Total (c)	12,00,000	12,50,000	12,00,000
Grand total (a+b+c) + op balance	6,41,03,000	11,14,63,000	13,90,85,000
Payment (Expenditure)			

(i) Maintenance			
Non-Plan University Fund	3,63,90,000	4,69,00,000	6,57,55,000
State plan Ass:-	23,00,000	80,00,000	35,00,000
Scheme and Project Exp	17,00,000	30,00,000	20,00,000
Others	13,20,000	10,00,000	1,00,000
Total (i)	4,17,10,000	5,80,00,000	7,13,55,000
(ii) Work Expenditure Capital:			
State Plan (including accrediation grant)	67,50,000	2,90,00,000	2,50,00,000
ICAR Grant /plan	86,00,000	1,75,00,000	3,80,00,000
Scheme/Project etc.	15,00,000	30,00,000	15,00,000
Total (ii)	1,68,50,000	4,96,00,000	6,45,00,000
(iii) Other accounts :			
Sundry Deposit Loan & Advances	11,40,000	12,10,000	12,00,000
Total (iii)	11,40,000	12,10,000	12,00,000
Gross total (i+ii+iii)	5,97,00,000	10,87,10,000	13,70,55,000
Closing Balance	44,03,000	27,53,000	20,30,000
Grand Total	**6,41,03,000**	**11,14,63,000**	**13,90,85,000**

Project Title : Animal Genetic Resource Biodiversity : Characterisation and Conservation of Bengal goat and Garole sheep

Principal Investigator : Dr. A. K. Sahoo, Deptt. of Animal Genetics & Breeding

West Bengal possesses the superior germplasm of sheep and goat. The Bengal goat is famous for producing best quality cheavon and world class morocco leather. The Garole sheep is world famous for its Booroola fecundity gene and disease resistance. The research project on "Animal Genetic Resource Biodiversity" has been undertaken to carry out research on various breeds of livestock and poultry in the country. Out of 12 centres, this centre is engaged for characterisation and conservation of Bengal goat and Garole sheep. For each breed characterisation, systematic survey is in progress in 60 villages covering three districts, viz., Nadia, Malda and Midnapore for Bengal goat and North and South 24 Parganas districts for Garole sheep of West Bengal to collect information on population status, householder, physical traits, management practices, farming systems, production, reproduction and carcass characteristics. Information on population status and demographical distribution of the breeds has since been collected. Collection of data on householder, physical traits and farming systems of Garole sheep has been completed. The data is being analysed in computer system.

Breeding Tract

The breeding tract of Bengal goat covers whole West Bengal with an area of 88,752 sq. km. Geographically, the tract consists of hill and tarai zone in the north, coastal zone in the south and a vast Gangatic plain zone in the east and west. The breeding tract of Garole sheep covers Diamond Hourbour, Canning, Baruipur and kakdwip subdivisions of North and South 24 parganas. Geographically, the tract belongs to Sundarban delta.

Population Status

The population of Bengal goat in the breeding tract is estimated as 14.3 million heads (1994). The annual growth rate is 7.9% (1972 to 1994) which is higher than the national average (3.15%) despite slaughtering of 40% of the stock annually for meat purpose. The present population of Garole sheep in the breeding tract is estimated as 2,66,533(1994). The growth rate has declined to 2.03% in 1998 from 8.34% in 1984, hence this breed is declared as endangered.

Garole Farmers

Majority of the Garole farmers are either land less labourer or marginal farmer. Among the farmers surveyed 34.2% were found to be land less. Profession wise they are 60.7% farmers, 25.9% labourers, 5.4% fisherman, 5.2% small businessman and rest belong to miscellaneous category.

Flock and Age Structure

Average Garole flock size is 3.91. The male: female ratio is 50 : 50 at birth. But the ratio changed to 7:93 beyond two years of age as almost 80% of the males are marketed and slaughtered before reaching this age group. Younger animals (birth-3 months) constitute only 8.9% of the population mostly due to heavy mortality during this age group.

Coat Colour Variety

Different coat colours, both pure and mixed, are observed in Garole sheep. The percentages of different coat colour in the population are grey 37.9, white (creamy) 37.4, brown 6.9, black 6.8, black grey 4.9, white black 1.3, brown black 0.04 and others 0.2.

Procurement of Elite Males

For ex-situ conservation of Garole sheep 53 young males of elite dam selected from computerised data base have been purchased from different villages of South 24 Parganas district. The animals are being reared for semen collection on maturity.

Project Title : Comparative study on the Seasonality of Bioenvironment of Protected and Unpr tected forest areas in the Eastern Himalayan Region with special reference to Wild Herbivores

Fellow : Dr. S. Pan, Deptt. of Animal Production Management

Biological diversity, or biodiversity, is the variety of all forms of life on earth. Its complexity is measured in terms of variations at genetic, species and ecosystem levels. The biodiversity is eroding at a rate unequaled in at least 65 million years. Rapidly escalating human demands for natural resources are causing genes, species and natural ecosystems to disappear at an unprecedented rate. Some of the most direct threats to biodiversity include habitat destruction, over exploitation, pollution, global climate change and invasion by introduced species. Biodiversity conservation is essential for global economy, food security, safeguarding human health and also provides recreational opportunities. But all conservation needs would be addressed without jeopardizing human aspirations for social and economic development.

The salient features of the protected areas under study are as under :

Name and location	Protected since	Area (sq. km.)	Topography	Forest Type	Major wildlife
Jaldapara National Park Dt. Jalpaiguri	18.11.1940	155.63	Flat bed of abandoned river and dead streams	Savannah, riverine, dry mixed, wet mixed, sal forests & grass lands	Rhinoceros, Tiger, Gaur, Elephant, Sambar, Hog Deer, Leopards, Wild Pigs.
Gorumara National Park Dt. Jalpaiguri	02.08.1949	79.99	Low lying flood plains or rivers	do	do
Senchal Wildlife Sanctuary, Dt. Darjeeling	1915	38.6	Hilly 1500m — 2600m elevation	Natural and man-made forests & subtropical flora	Barking Deer, Wild Pigs, Macaque, Jackel, Dogs, Birds.

Climates and seasons were studied using climatic data for 10 years (1991-2000) as per Lee (1953) Bacteriological quality of the drinking water (for wild herbivores) was assessed using standard technique and mineral status by atomic absorption spectrophotometer. Level of sound pollution at the different depth of forests was recorded by sound level meter (Yee Fong ; YF-20). Different causes of forest degradation were identified through extensive visit.

Four seasons, viz., warm humid, warm wet, temperate humid and temperate wet has been identified for Gorumara and Jaldapara region. Senchal area experiences cool dry, temperate dry and temperate humid seasons. Average annual rainfall in Gorumara-Jaldapara and Senchal areas are 33.54 and 27.67 cm respectively. Senchal forest receives good amount of frost, fog and snow. In both locations there is an appreciable variation between day and might temperatures throughout the year. However, in both locations climate is not extreme in any season for the wild herbivores.

The forests have both perennial and seasonal water sources. The perennial sources include mainly river. A big lake (Senchal lake) is the only perennial water source for Senchal Wildlife Sanctuary. The seasonal sources are rivulets and spring. The microbiological quality of water samples collected from different points frequently used by wild herbivores was found to be satisfactory. Only 10% of the samples were positive for faecal coliform. Mineral statuses of water from different locations were similar except for calcium and none of the sources was found deficient. The values (mean ± SE in ppm) were, iron 0.96 ± 0.03, zinc 0.27 ± 7.52, copper 0.028 ± 2.91, manganese 0.27 ± 1.53. Calcium content of Jaldapara (0.96 ± 0.09 ppm) was much higher than that of Gorumara (0.52 ± 0.06 ppm). Sound produced by insects, birds and animals inside forest reached up to 70 decibel, but not be disturbing to animals. However sound produced by motorised vehicles and train (96-100) db) passing through forests creates severe sound pollution for animals.

Besides, other, anthropogenic and natural factors causing severe degradations of forests are soil erosion due to recurrent floods leading to uprooting of trees, death of trees (due to insect, fungus infection and weeds), illegal felling, collelction of fire wood, forest fire, expansion of agricultural land at the cost of forest land and rampant cattle grazing within protected areas. Frost and snow hamper forest regeneration in Senchal. Diseases and poaching directly eliminate large number of wild herbivores.

It is obvious that, but for protection, forest and wildlife would have disappeared as it has almost happened in unprotected areas.

Project Title : Characterisation and Conservation of Ghoongroo Pig and Popularisation of Ghoongroo Production in Dooars' valley of West Bengal.

Project Officer : Dr. S. Pan, Deptt. of Animal Production Management

An Indigenous variety of pig is found to be very popular among farmers (particularly tribals) of Dooars' valley of West Bengal. A snapshot survey was conducted to collect some preliminary baseline information. The animal was found to possess some outstanding characteristics, viz., litter size at birth 12-14, with a highest of 18, body weight at 7 months

of age 70 kg on very low plane of nutrition. They attain early sexually maturity at 6 months of age. Phenotypically, the animal is black in colour with compact body, thick coarse and long hair coat, thick and broad neck, long tails and upwardly curved shout. The ears are large and heart shaped, resembling that of elephant. The scrotum loosely hangs from body. Locally known, as Ghoongroo, the animal is an unexplored outstanding animal genetic resource of Dooars' valley. According, to the farmers the breed is also popular in Bhutan and Nepal and possibly abundant in Tibetan valley. The scheme is located at Ramsai Farm, located in Dooars' valley under this University. A nucleus stock is being established at the farm. A training programme on 'Ghoongroo Production Management' has been completed with 55 participants as per mandate of the project. More training programmes will be conducted in series. Planned survey on the animal and farmer is in progress. The animal can fulfil the need of a quality indigenous breed of pig.

Project Title : Survey Evaluation of Garole sheep in Sundarban area of West Bengal

Principal Investigator : Dr. S. Pan, Deptt. of Animal Production Management

Breeding Tract

The breeding tract of Garole sheep covers Diamond Harbour, Baruipur, Canning and Kakdwip subdivisions of South 24 Parganas and Basirhat subdivision of North 24 Parganas districts. Total area is roughly about 10,985 sqkm. Geographically, the tract belongs to swampy Sundarban delta, one of the largest deltas in the world. India and Bangladesh share sundarban. In India it is located between 21° 32' to 22° 40' north latitude and 88005' to 89000' east longitude. It is bounded by river Hooghly (Ganges) on the west, Bay of Bengal on the south and Ichhamati – Kalindi – Raimangal rivers on the east. The region is criss-crossed by innumerable tidal rivers and creeks forming large number of islands. Topography is more or less flat. Average maximum and minimum elevations above mean sea level are 9 and 1.2 metre respectively. Air temperature ranges from 15°C to 35°C and relative humidity varies from 45% to complete saturation (100%). The area receives annually about 1800 mm rainfall with 80 rainy days.

Population Status

Present (1998) population of the Garole sheep in the breeding tract is estimated as 2,66,533 (census data). The population registered an annual growth rate of 8.34% from 1972 to 1984. But the rate declined to 2.03% between 1984 to 1998. As evident from the study that the major reasons for loss of popularity among farmers are expansion of crop cultivation and consequent shrinkage of grazing land, mortality mostly due to intestinal parasites and pneumonia and available of more remunerative alternative vocations. The concentration of animals are more in the remote islands, where prospects of crop cultivation is less due to frequent inundation by saline water. The breed is also equally prevalent in the other side of the International border (Bangladesh) as could be seen from India. But no report is available.

Breed Utility

It is a mutton type breed. Garole produces coarse hairy fibre. But there is no practice of shearing in the breeding tract. The breed is highly prolific. Percentages of singleton, twins, triplets and quadruplets in the population are 22.3, 67.6, 9.7 and 0.3 respectively.

Coat Colour Variety

Different coat colours, both pure and mixed, are observed in this breed. The percentages of different coat colour in the population are, grey 37.9, white (or creamy) 37.4, brown 6.9, black 6.8, black-grey 4.9, white – black 4.4, white-grey 1.3, brown-black 0.04 and other 0.2.

Flock and Age Structure : Average flock size is 3.91. Age structure of the population is furnished below :

Particulars	Age Group (month)				
	Birth-3 Mo.	3.1-6 Mo.	6.1-12 Mo.	12.1-24 Mo.	>24 Mo.
Male (%)	14.5	33.2	31.5	15.1	5.6
Female (%)	6.7	12.1	22.4	31.0	27.7
Total (%)	8.9	17.9	24.9	26.6	21.6
Male : Female	45:55	51:49	35:65	16:84	7:93

Animals suffer heavy mortality during birth to 3 months of age. About 80% of the males are marketed within 24 months of age and rests are retained for breeding purpose.

Project Title : Net Work Project on Micro nutrients in Animal Nutrition & Production (ICAR)

Principal Investigator : Head, Deptt. of Animal Nutrition.

Detail survey was carried out to assess the micro nutrient status of soil, feed, and fodder and in livestock for different agroclimatic zone of West Bengal. Micro nutrient concentrations in some feeds and fodder have been found to be below the minimum critical level. Consequently, deficiency symptoms have also been exhibited in different categories of livestock.

Bioavailability studies were also conducted with animals in different stages of lactation (1st, 2nd and 3rd stage) in commercial dairy farms to ascertain the productivity performances of dairy cattle in relation to these minerals. It is interesting to note that supplementation of major and trace elements in optimum concentrations may enhance milk yield as well as can bring about an improvement in terms of the yield of milk constituents. To confirm the findings the Department of Animal Nutrition has engaged itself with on farm trials in lactating animals. The diets of such animals are being supplemented with suitable mineral mixtures prepared to meet with the problem of deficiency of important micronutrients.

Under NWP, copper deficiency has been produced artificially in the goats by feeding the animals continuously with molybdenum salts in graded concentrations. The goats have shown typical symptoms of copper deficiency and supplementing the animals with appropriate copper salts has rectified the condition.

Project Title : NATP : Urban and Peri urban system of milk production through use of concentrate forage feeding system

Principal Investigator : Dr. Barun Roy, Deptt. of Animal Nutrition

26 survey zones have been selected in and around Kolkata district, North-24 Pgs., South 24 Pgs., Howrah, Hoogly and Nadia, which is, under milk system zone of Kolkata. Upto February 2001, around 350 numbers of survey had been carried out. Total 500 numbers of survey has been taken into target. Survey analysis of the project programme reveals that the Cattle as well as the buffaloes in urban and periurban areas of Kolkata district did not receive the required amount of dry matter, DCP and TDN. The nutritional status of animals around urban and periurban areas can be improved within the existing roughage based feeding regimen by providing an economically viable complete feed fortified with minerals, vitamins and other micro nutrients. The study further indicated that the animals were not adequately cared for which is an important impediment in harnessing the full milk yield potential of those animals.

Project Title : AICRP on Goat Improvement (Black Bengal Field Unit)

Scientist Incharge : Prof. S. K. Misra, Deptt. of Animal Genetics and Breeding.

Realising the importance of the Black Bengal goat as an excellent genetic resource and as the way of improving the earning of the people living below the poverty level, ICAR has undertaken the AICRP on goat improvement. As this state is the native place and the breeding tract of the Black Bengal goats, ICAR has selected the West Bengal University of Animal and Fishery Sciences as a center (Black Bengal Field Unit) in the ixth Five year plan with the objective "Improvement of native goat breeds for higher production through selection within breed", and with the following targets :

1. Evaluation of breed and characterisation under field conditions.
2. Improvement of body weights by 5% through selection.
3. Generation of information on managemental, socio-economics, postproduction scenario under village conditions.
4. Establishment of open nucleus breeding scheme.

The Department of ARD, Govt. of West Bengal has sanctioned 25% of the total project cost. The University has implemented this project from December, 2000. In the 1$^{st.}$ phase the district wise goat population in the state has been ascertained. To study the breed characteristics and the socio-economic status of the goat farmers, a survey work in 3 (three) districts namely, Midnapur, Nadia and Malda having dense goat population have been undertaken and the survey work is in progress. Simultaneously, as breed improvement programme, 3 (three) villages, namely Panchpota, Ganguria and Hatikanda, around the Mohanpur campus of the University have been selected. In the three villages 71, 91 and 86 farmers and 113, 132 and 149 goats respectively have been selected for this programme.

Project Title : "All India Network Programme on Gastro-Intestinal Parasitism" (I.C.A.R. Funded Research Project).

Principal Investigator : Dr. J. D. Ghosh, Deptt. of Vety. Parasitology.

A survey was conducted to record the prevalence of gastrointestinal parasitic infections of cattle, buffalo, sheep and goat in the districts of Burdwan, Midnapur, Nadia, Howrah, North 24-Parganas, South 24-Parganas and Kolkata. Out of the total of 355 cattle, 171 buffaloes, 72 sheep and 95 goats screened by qualitative/faecal examinations, 116 (32.7%), 19 (11.1%), 46 (63.9%) and 62 (65.3%) had gastrointestinal nematode infections respectively. In cattle, Kolkata district recorded the highest prevalence (60%) followed by South 24-Parganas (45.5%), North 24-Parganas (40%), Howrah (31.3%), Nadia (26.5%) and the lowest was in district Midnapur (21.6%). The numbers of buffaloes, sheep and goats screened so far were inadequate for analysing the districtwise prevalence of gastrointestinal nematode infections in these species.

A slaughter house study revealed that Oesophagostomum spp. (46.5%), Trichuris spp. (36.0%), Haemonchus spp. (11.3%) and Hookworms (6.0%) were the nematodes prevalent in goats and mixed infections involving two or more species were of common occurrence.

This is a preliminary report and the study involving other districts would be continued to explore the overall picture of gastrointestinal nematode infections in the entire state of West Bengal.

Project Title : "Efficacy & stress of chemosurgery and chemosterilization in large and small Animals with a New Chemosterilizing Agent".

Principal Investigator : Dr. P. K. Samanta, Deptt. of Vety. Surgery & Radiology

Research works were designed by simple injection of calcium chloride with 1% lignocaine hydrochloride to the male animals of different species, viz., cattle, sheep & Goat, Dog, Pig, Rat etc with various volumes & concentrations of Calcium Chloride using disposable syringes & Needles. Optimum solutions and dosages have been determined.

The evidence of pain of intratesticular injection may be comparable in that caused by the injection of a local anaesthetic agent. All types of animals tolerated the injections well and did not suffer from pain, fever or marked inflammatory swelling of the testes. No complications were observed clinically. Progressive atrophy of the testes noticed after 2-3 weeks and after 2-3 months only a small testicular remnanta can be palpated. Histomorphological findings showed complete necrosis of seminiferous tubeles and Interstitial tissues which were replaced by fibrocollagenous bonds and thereby converted the male animals completely sterile.

The results suggest that the prescribed method of chemosterilization in male animals of different species is simple, economical and free from any side effects. It is highly suitable for mass scale sterilization programme of stray dogs and there by would radically contribute in Animal Birth Control Programme in male dogs and in canine rabies control programme.

The results of the study indicate that this low cost chemosterilization will extend matchless help and immediately lend a direct benifit for speedy implementation of intensive cattle development programme through Frozen semen in West Bengal, in particular, and India, in general.

In the field of chemosurgery, the use of calcium chloride may be utilized effectively for prevention of horn bud growth in bull calves and thereby it will be a preventive measure for controlling horn cancer in cattle. Further that it will also invigorate to the application of chemosurgery in treating Vety. surgical practice by overcoming the use of knife for granulomatous growth and suppurative lesions in animal patients.

Project Title : Weather Based Animal Disease Forecasts

Principal Investigator : A. K. Pramanik, Dept. of Vety. Public Health

1. Disease data have been collected from different districts.
2. Major disease occurrence data of livestock animals have been collected for retrospective data bank.
3. Collection of month wise data on disease occurrence, out break and death is going on which will be continued for prospective data bank.
4. For weather parameters regional meteorology centre has been intimated and this will be correlated with disease data prospectively.
5. On coordination between disease process in different districts of West Bengal and different meteorological observations, certainly create socio-economic impact on disease surveillance and control.

Data on disease occurrence has been collected at district level month wise for the year of 1996, 1998 and 1999. Regional meteorological centre has been intimated for meteorological data.

Project Title : Network Project on "R & D Support for Process Up-gradation of Indigenous Milk Products for Industrial Application"

Principal Investigator : Dr. S. R. Chakrabarti, Dept. of Dairy Technology

The above project was started in this University during November 1997 ; with an outlay of Rs. 28.97 lakh. This center was assigned to study on Rasogolla and Sandesh. Detailed market study was carried out by collecting samples from various cities and towns of the state of West Bengal, Bihar and Orissa. About 500 samples of each sponge rasogolla and ordinary rasogolla, karapak sandesh and narampak sandesh were colleted from market in a rigid container to avoid compaction and minimize structural deformation.

The samples were analysed for their chemical, microbiological and rheological parameters using standard methods and the average results are given below.

The chemical composition of sponge rasogolla were found to be ; moisture 44.36%, protein 5.38%, fat 4.73%, sugar 39.52%, ash 0.36% and additive 5.83% and those of ordinary rasogolla were ; moisture 40.99%, protein 5.87%, fat 17.55%, sugar 41.42%, ash 0.39% and additive 4.78%. The microbial study of rasogolla revealed the average value of standard plate count 5.93 x 10^4 cfu/g, coliform count 347 cfu/g and yeast and mold count 1614 cfu/g.

The texture profile parameters of sponge rasogolla showed ; hardness 10.439 g, fracturability 10.485 g, adhesiveness – 2.082 gs, springiness 0.908 mm, cohesiveness 0.740, gumminess 8.449 g, chewiness 7.769 gmm and resilience 0.176 and those of ordinary rasogolla were hardness 11.663g, fracturability 9.864 g, adhesiveness – 4.843 gs, springiness 0.857 mm, cohesiveness 0.594, gumminess 6.480 g, chewiness 5.893 g mm and resilience 0.132.

The average chemical composition of karapak sandesh were found to be ; moisture 14.98%, protein 18.59%, fat 17.57%, sugar 41.88%, ash 1.82% and additive 3.69% and those of narampak sandesh were ; moisture 22.27%, protein 17.42%, fat 16.91%, sugar 39.78%, ash 1.50% and additive 2.04%.

The microbial count of karapak sandesh were found to be ; standard plate count 18.52 x 10^2 cfu/g, coliform 40 cfu/g and yeast and mold 22 cfu/g, and those of narampak sandesh were ; standard plate count 27.23 x 10^5 cfu/g, coliform count 149 cfu/g and yeast and mold count 121 cfu/g.

The texture profile parameters of karapak sandesh were found to be ; hardness 12.165 g, fracturability 10.121 g, adhesiveness 0.255 gs, springiness 0.765 mm, cohesiveness 0.393, gumminess 4.920 g, chewiness 2.888 g mm and resilience 0.178 and those of narampak sandesh were ; hardness 10.697 g, fracturability 9.919 g, adhesiveness –2.667 gs, springiness 0.685 mm, cohesiveness 0.145, gumminess 1.261 g, chewiness 0.861 g mm and resilience 0.055.

Project Title : "Shrimp and Fish Health Management" (NATP)

Principal Investigator : Dr. T. J. Abraham, Dept, of Fish Pathology and Microbiology

There has been a set-back in shrimp aquaculture in West Bengal due to widespread prevalence of white spot viral (WSV) disease. This disease was observed in all the shrimp culture systems, although with varying degrees of severity. The most severely affected one being the semi-intensive system followed by modified extensive, improved traditional and traditional systems in order. Multiple diseased condition was noticed in white spot viral diseased shrimps and these include red colouration, vibriosis, luminous vibriosis, soft-shelling, protozoan fouling and gill choking.

Histopathological studies on diseased shrimp revealed predominance of WSV infection and also of Hepatopancreatic viral infection. *Vibrio spp* induced septicemic hepatopancreatitis was also noticed in diseased shrimps.

Bacterial species belonging to the genera Aeromonas, *Pseudomonas* and *Vibrio* were isolated from shell diseased *Penaeus monodon*.

Bacterial isolated were found to be highly resistant to antibiotics such as oxytetracycline, nitrofurantoin and co-trimoxazole in order.

Project Title : Use of Probiotics in Freshwater Aquaculture (ICAR-Adhoc-Project)

Principal Investigator : Dr. T. J Abraham, Deptt. of Fish Pathology and Microbiology

Standard strains of lactic acid bacteria were found to be antagonistic to bacteria pathogenic to human and fish at varying degrees.

Aeromonas hydrophila isolated from fish was found to be inhibited by all lactic acid bacterial strains tested.

Project Title : Integrated Management Through Fish, Duck and Pig Culture in Rice Farming System (NATP)

Co-Principal Investigator : Dr. T. K. Ghosh, Deptt. of Aquaculture

The average production of fish in rainfed rural areas of West Bengal is merely 100-500 kg/ha/yr which is far below the average production. Agriculture also do not provide a full year employment to the poor farmers. There are many reasons for low fish production e.g. lack of organic manure for pond and no supplementary feeds for fishes. The fish cum live stock integrated farming along with paddy can increase the fish production, food security, employment generation and maximum utilization of pond embankment or nearby areas of the pond. The aim of this project is to conduct experiments in farmers pond to have the idea of exact problems of adoption of the technology and to develop a suitable package of practices for fish-cum-pig & fish-cum-duck farming so that farmers have year round income.

As per the technical programme, Midnapur district was selected for WBUAFS centre for the current year 2000-2001. Three farmers each for fish cum duck at Barua and fish cum pig at Uchitpur of Midnapur district were selected. For the period of 2001-2002 we already have selected six farmers for integrated farming.

For the year 2000-2001 fish seed were stocked @ 10,000/ha fingerlings in the month of November 2000. The stocking was done in the ratio of catla : rohu : silver carp : grass carp : common carp in the ratio of 3:2:1:1:1:2. Ducks and pigs were distributed in the month of December 2000 @ 300/ha & 60/ha respectively. Khaki campbell ducks were supplied to two farmers and local variety to third one. In the case of pigs, local upgrated variety were used for integration.

Heavy rainfall and flood like situation occurred at Barua centre and old farmers (1999-2000) suffered due to flooding of pond which was followed by endemic disease resulted heavy mortality of fish. After application of duck and pig manure in the ponds, the physico-chemical and biological parameters of pond water and soil are showing increasing trend at both Barua and Uchitpur centre. It is increasing the productivity of water of the pond.

Although the complete harvesting of fishes have not been done but the partial harvesting have been done in some ponds. The fishes have shown good growth rate, though we stocked fish seed in November, i.e. in winter month.

Growth rate of ducks (khaki campbell) is high and it attained upto 1.5 kg in six months and local variety also exhibited good growth rate.

Growth of pigs have shown increase in average weight from 7.42 kg to 35.5 kg in six months.

The current study shows that there is still scope to increase the stocking density of ducks and pigs from 300/ha and 60/ha to 350/ha and 70/ha respectively for the coming year.

Project Title : Technology Assessment and Refinement (TAR) in Coastal Agroecosystem in Midnapore Through Institute Village Linkage Programme (IVLP)

Principal Investigator : Dr. A. Goswami, DREF

The project has great positive impact on farmers of Barua village in form of developing mass awareness on scientific technologies, increased production from animal husbandry and fishery sector, generation of additional profit, development of animal resource, equability and sustainability in yield, creation of employment, etc. However, prior to the initiation of this project, the farmers of the area has poor professional aptitude and they were ignorant in many aspects of farming like information on improved breed, nutritional requirement, preventive measures for disease occurrence, utility of management practices, etc. To be very precise, after the implementation of the project, there has been increase in average milk production, reduction in calving interval, reduction in mortality, increase in growth and production of fish in ponds, etc. All the 765 farm families are being benefited from the project. Seeing the profitability, the farmers of the village are opting to rear more animals, birds and fish. There is a growing tendency for duck-cum-fish integrated farming among the fish farmers. The culture of fish in the village canal was successful and from there the farmers have learnt to work on co-operative basis. Apart from these, the project is able to create tremendous spirit and enthusiasm among the farmers. In nutshell, the project has brought a remarkable improvement in socio-economic status of the farmers by generating additional income from animal husbandry and fishery.

16 List of Thesis Awarded

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Deptt. of Veterinary Pharmacology & Toxicology			
Sudeshna Roy	Studies on toxicokinetic and residue of some synthetic pesticide in goat.	T. K. Mondal	M. V. SC. 1999
C. V. Sanis Juliet	Study of Disposition kinetics, metabolism and cytotoxicity of deltametherin in animal	A. K. Chakraborty	Ph. D. 1999
Barun Moulik	Disposition kinetics of ofloxacin in lactating goats.	R. K. Ghosh	M. V. Sc. 1999
Subratesh Roy	Study of short term feeding effects of some herbicide in growing broiler chicks.	A. K. Chakraborty	M. V. Sc. 1999
Biswa Priya Datta	Modification of Pharmakinetics of cefotoxime in experimentally induced kidney damaged goats.	T. K. Mondal	M. V. Sc. 1999
Chinmoy Bhattacharya	Toxicity study of dicamba in animal.	A. K. Chakraborty	M. V. Sc. 1999
Subhas Ch. Mondal	Intravenous toxicity and metabolism stu-	A. K. Chakraborty	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
	dies of mepiquat chloride following repeated oral administration In goat.		
Tapas Kr. Sar	Studies on toxicokinetics and recovery of some pesticide in goats.	T. K. Mondal	M. V. Sc. 1999
Swati Pal	Disposition kinetics and pathophysiological studies of rafoxanide (Flukicide) following administration by different routes in goats.	T.K. Mondal	M. V. Sc. 2000
Madhusudan Mukherjee	Toxicokinetics and recovery studies of Dicamba Dimethyl Amine salt (Herbicide) in goats following a single oral administration.	T. K. Mondal	M. V. Sc. 2000
Moloy Kr. Bhar	Hepatoprotective effect of livol (R) and Enliv (R) on paracetamol – induced liver Damage in growing Broiler chicks.	A. K. Chakraborty	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Shiben Chandra Debnath	Toxicokinetics, recovery and cytotoxicity studies of metamitron following oral administration in goat.	A. K. Chakraborty	M. V. Sc. 2000
Biplab Kr. Kar	Effect of consecutive administration of ciprofloxacin in female Black Bengal Goats in terms of haematological, Diochemical and histopathological changes.	R. K. Ghosh	M. V. Sc. 2000

Deptt. of Animal Genetics and Breeding

Sanjoy Akuli	Cytogenetic study on metaphase chromosome of garole and Muzaffarnagari sheep.	A.K. Sahoo	M. V. Sc. 1999
Keshab Chandra Dhara	Studies on genotype and phenotype of some important economic traits of a crossbred population of indigenous cattle.	R. Sinha	M. V. Sc. 1999
Ramanuj Banerjee	Studies on Characterization of methotrexate	R. Sinha	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
	resistant clones derived from parental male lung fibroblast cell V79 of chinese hamster.		
Sujit Kr. Khanra	Studies on blood protein polymorphism and their relationship with economic traits and some micro-elements in Black Bengal Goat.	P. K. Senapati	M. V. Sc. 1999
Dilip Kr. Das	Studies on breed characteristics reproductive traits and bio-chemical polymorphism in garole sheep.	R. Sinha	M. V. Sc. 1999
Sukanta Roy	Cytogenetic studies of chromosomes in buffaloes.	S. K. Mishra	M. V. Sc. 2000
Miss Dimple Chakraborty	Genetic studies of "Glucose-6-Phosphate Dehydrogenase" enzyme in the blood of cross-bred cattle.	P. K. Senapati	M. V. Sc. 2000
Sanjay Ghatak	Haemoglobin and transferrin polymorphism in four breeds of sheep and	A. K. Chatterji	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
	their association with certain economic traits.		
Monoranjan Roy	Genetic studies of "Glucose–6–Phosphate Dehydrogenase" (G–6–PD) Enzyme" in Indian buffaloes.	R. Datta Gupta	M. V. Sc. 2000
Prasanta Kr. Bera	Chromosome analysis of large white Yorkshire pigs with special reference to litter size.	A. K. Sahoo	M. V. Sc. 2000
Deptt. of Veterinary Medicine			
Tushar Kanti Samanta	Studies on rotaviral Diarrhoea, in animals and birds.	S. Sarkar	M. V. Sc. 1999
Sourav Chandra	Free radical status in diabetic canine with special reference to zinc and some related components.	A. Chakraborty	M. V. Sc. 1999
Nilkamal Mukherjee	Studies on Demodicosis and scabies in canine and their therapy.	A. K. Pramanik	M. V. Sc. 1999
Tapan Kr. Sur	Studies on subclinical and cli-	A. K. Pramanik	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
	nical mastitis on milch cows with special reference to milk composition.		
Niranjan Roy	Studies on clinicobiochemical aspects of kitosis in cattle and its therapy.	S. Mitra	M. V. Sc. 1999
Jayanta Chowdhury	Mycobacterium bovis infection in cattle in India a Calcutta slaughter House based study.	S. Sarkar	M. V. Sc. 1999
Paresh Chandra Ghorui	Studies on the preventive aspects of polyharbal preparation against parturient hypocalcaemia (milk fever) in dairy cows.	A. Chakraborty	M. V. Sc. 1999
Navneet Kaur	Experimental studies of Toxicological profiles, toxikinetics, cytotoxicity and antidotal therapy of nitrate/nitrite toxicity in goats.	A. K. Pramanik	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Dayamay Mondal	Studies on some aspects of mycoplasmosis in goat with special reference to pneumonia.	A. K. Pramanik	Ph. D. 2000
Sk. Miskin Ali	Studies on hepatogenous photo-sensitization in cross-bred calves with special reference to therapy with certain herbal drugs.	A. Chakraborty	M. V. Sc. 1999
Asim Biswas	Studies on chronic respiratory disease (CRD) and other concomitant infections in broiler.	A. K. Pramanik	M. V. Sc. 2000
Nakul Chandra Shee	Studies on humpsore of cattle in and around coastal belt of Midnapore District, West Bengal.	S. K. Mitra	M. V. Sc. 2000
Jagannath Manna	Effects of zinc sulphate –A chemical compound and Phyllanthus emblica fruits an Indian traditional medicine of experimentally induced gastric ulcer in canine.	A. Chakraborty	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Rupam Barua	Studies on common parasitic and bacterial diarrhoea in canine in and around Calcutta with special reference to Therapy.	A. Chakraborty	M. V. Sc. 2000
Puspendu Panja	Studies on Rotavirus Diarrhoea in calves.	S. Sarkar	M. V. Sc. 2000
Rahul Nath	Studies on common parasitic and bacterial diarrhoea in goats in and around Calcutta with special reference to Therapy.	A. K. Pramanik	M. V. Sc. 2000

Deptt. of Veterinary Surgery & Radiology

Bhupindar Singh	Studies on construction of viable inverse skin tube for use as an ideal oesophageal substitute in canine.	T. B. Sen	M. V. Sc. 1999
Prasant Bhagat	Studies on the prevalence of joint and foot diseases in race and jumping horses.	P. K. Samanta	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Avijit Dutta	Studies on effect of cryosurgery on anal fistula and venereal granuloma in canine.	P. K. Bose	M. V. Sc. 1999
Angshuman Rakshit	Studies on chemosurgery in veterinary practices.	P. K. Samanta	M. V. Sc. 1999
Samar Haldar	Studies on the anaesthetic and preemptive analgesic affect of epidural xylazine alone and in different synergistic combinations with buprenorphine and tramadol.	P. K. Bose	M. V. Sc. 1999
Subrata Sanki	Studies on evaluation of rena. function with excretory urography following administration of cisplatinin canine.	T. B. Sen	M. V. Sc. 1999
Paresh Ch. Biswas	Studies on the anaesthetic effects of xylazine alone and in combination with midazolam and buprenorphine in atropinised dog.	T. B. Sen	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Anandadulal Maity	Studies on chemosterilisation in male goat.	P. K. Samanta	M. V. Sc. 1999
Swapan Kumar Das	Studies on cryogenic approach to the treatment of mammary tumor in canine.	T. B. Sen	M V. Sc. 2000
Tapas Biswas	Studies on Electrosurgical approach in treatment of neoplasms in canine.	T. B. Sen	M. V. Sc. 2000
Arnab Chakraborti	Studies on vascular anastomosis after partial and complete transaction of limb artery in canine.	T. B. Sen	M. V. Sc. 2000
Shailesh Kumar	Chemosterilisation by a single intra-testicular injection of calcium chloride in sheep.	P. K. Samanta	M. V. Sc. 2000
Partha Sarathi Nag	Efficacy and stress of chemical castration Vs. surgical castration in Bucks.	P. K. Samanta	M. V. Sc. 2000
Kingshuk Das	Sterilisation of male pigs with intra-testicular injection of calcium chloride.	P. K. Samanta	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4

Deptt. of Veterinary Microbiology

Mohd. Mehebub-ur-Rahaman	Immunological response of different pre bite antirabies vaccines used in experimental and pet dogs.	P. Sarkar	M. V. Sc. 1999
Debasis Mukherjee	Isolation and characterisation of **Escherichia coli and Salmonella spp** from apparently healthy piglets and piglet with gastro enteritis.	(Mrs.) R. Das	M. V. Sc. 1999
Surojit Biswas	Studies on relation between presence of clostradial spores with soil constituents and characterisation of Clostradium perfringes.	N. C. Nag	M. V. Sc. 1999
Arun Kr. Hui	Studies on isolation of **Escherichia Coli** and **Salmonella Spp.** from Ducks and their serotyping, pathogenecity and Antibiogram.	(Mrs.) R. Das	M. V. Sc. 1999
Biplab Das	Mycoflora in the environment of captive birds and among aviarist.	J. P. Roy	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Atanu Saha	Bio-chemical screening anti-microbial drug sensitivity and pathogenecity of **Escherichia Coli** isolated from Broiler chicken.	(Mrs.) R. Das	M. V. Sc. 1999
Surojit Basu	Studies on the involvement of group-I avian adenovirus, serotype 4 in hydropericardium Syndrome (Leechi Heart Disease) in broiler chicks of West Bengal.	J. P. Roy	M. V. Sc. 1999
Kamal Adak	Studies on distribution of clostridial spores in relation to chemical composition of soil with special emphasis on **clostridium tetani.**	N. C. Nag	M. V. Sc. 1999
Mrityunjoy Chakraborty	Characterisation, pathogenecity and antibiogram of **Pseudo-monas auriginosa** isolated from animal and human sources.	J. P. Roy	M. V. Sc. 1999
Kunal Batabyal	Studies on different physiological characters toxin production, pathogenicity and antibiogram of pathogenic aerobes isolated from Quails.	(Mrs.) R. Das	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Rabindra Nath Ghosh	Studies on characterisation, pathogenicity and antibiogran of coagulase positive staphylococci isolated from cattle and pigs.	P. B. Sarkar	M. V. Sc. 2000
Kalidas Banerji	Characterisation of bacterial agents isolated from sub-clinical Mastitis in dairy cows and epidemiological studies of the disease.	J. P. Roy	M. V. Sc. 2000
Samir Dey	Studies on the pathogens isolated from digestive tract of slaughtered goats.	P. B. Sarkar	M. V. Sc. 2000
Papiya Chakraborty	Studies on biochemical screening serological typing, pathogenicity and antibiogran of **Echerichia coli,** isolated from poultry and cattle sources.	J. P. Roy	M. V. Sc. 2000
Amit Kumar Mondal	Isolation and characterisation of aerobic Bacteria from bovine clinical mastitis with special reference to their antibiogram.	(Mrs.) R. Das	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4

Deptt. of Animal Production and Management

Rupak Mishra	Studies on serum phosphatase enzyme activity during growth and in different physiological status of Bengal Breed of goats.	M. K. Agasti	M. V. Sc. 1999
Sanjukta Sinha	Studies on performance of growing Black Bengal kids in a deep litter House.	D. N. Maitra	M. V. Sc. 1999
Shantidev Bishayi	Multifactorial causes of preweaning piglet mortality under intensive farming system.	A. K. Samanta	M. V. Sc. 1999
Soma Mukherjee	A comparative study on management of the Black Bengal Goat under free range and supplementary feeding system.	S. K. Roy	M. V. Sc. 1999
Sandip Kr. Jana	Evaluation of small holder goat production system in South Bengal.	S. Pan	M. V. Sc. 1999
Partha Sarathi Chakraborty	Studies on serum transaminase	S. C. Mazumder	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
	enzyme activity during growth and in different physiological status of Bengal breed of goats.		
Bharat Ch. Haldar	Pre-weaning performance of large white york shire pigs under hot-humid climate of West Bengal.	A. Samanta	M. V. Sc. 1999
Mrinal Kanti Dey	Studies on productive performance of Japanese Quails **(Coturnix Coturnix Japonis)** maintained in case and deep litter systems in West Bengal.	M. K. Agasti	M. V. Sc. 2000
Kamal Krishna Roy	Studies on certain aspects of commercial Pig production systems.	Subhransu Pan	M. V. Sc. 2000
Chandan Kumar Das	A comparative study on the productive and haematological aspects of Soviet Chinchilla and Grey Giant Rabbits under Hot Humid condition of West Bengal.	D. N. Maitra	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Susmita Gon	Studies on productive parameters of Grey Giant Breed of Rabbit in the climatic condition of West Bengal.	S. K. Roy	M. V. Sc. 2000
Sanjeeb Gilbert Christopher	Productive performance of Rabbit **(Oryctolagus cuniculus)** with special reference to carcass characteristics.	S. C. Mazumdar	M. V. Sc. 2000

Deptt. of Animal Nutrition

Ajit Kr. Samanta	Animal protein replacement with vegetable protein in broiler.	G. Samanta	M. V. Sc. 1999
Ratan Lal Biswas	Mineral status of ruminants in relation to feeds and fodder of old Alluvial zone in West Bengal	G. Samanta	M. V. Sc. 1999
B. Kundu	Studies on use of enzyme phylare and enzyme cocktail in feed on the	P. Biswas	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
	performances of commercial Broiler chicken.		
Amitava Das	Micronutrient status of different categories of livestock in part of New Alluvial and Red laterite Agro-climatic zones of West Bengal in relation to plant and soil.	T. K. Ghosh	M. V. Sc. 1999
Debabrata Tola	Effect of different level of Molybdenum on other minerals in Black Bengal goats.	T. K. Ghosh	M. V. Sc. 1999
Manoj Sarkar	Studies on micronutrient status of livestock feed and fodder of Hill zone of West Bengal.	B. Roy	M. V. Sc. 1999
Amit Das	Studies on interactions between plant and plasma mineral content of different categories of dairy animals in the hill zone of West Bengal.	P. Biswas	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Mahadeb Naskar	Micronutrient status of cattle and sheep in relation to feeds and fodders of part of saline zone in south 24-parganas district of West Bengal.	P. Biswas	M. V. Sc. 2000
Abhay Kr. Singh	Studies of nutritional status of lactating cattle and buffaloes in urban and Peri-urban areas of Calcutta District.	B. Roy	M. V. Sc. 2000
Joydeep Sarkar	Bio-availability of nutrients in dairy cows.	T. K. Ghosh	M. V. Sc. 2000
Kousik Kr. Ghosh	Micronutrient status of different categories of cattle and goats in relation to feeds and fodder of Teraizone of West Bengal and study on effects of different dietary levels of molybdenum in goat.	G. Samanta	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4

Deptt. of Veterinary Pathology

S. B. Maity	Studies on the pathology of lymph nodes in cattle.	T. L. Some	M. V. Sc. 1999
Debasis Chatterji	Studies on the renal disorders in cattle in and around Calcutta.	Mrs. P. Deb	M. V. Sc. 1999
Debasis Neogi	Toxico pathological and immune responses of broiler chicken induced with ciprofloxin.	M. K. Bhowmik	M. V. Sc. 1999
Bholanath Sasmal	Experimental patho-physiological studies on elevated level of dietary salts in broilers.	D. K. Basak	M. V. Sc. 1999
Mrityunjoy Mondal	Assay of clinico-pathological dynamics of visceral larva migrans in piglet caused by experimental infection with **Toxocara canis** (Werner, 1982) Larva.	D. K. Basak	M. V. Sc. 1999
Satyendra N. Das	Studies on incidence and pathological changes of	Mrs. P. Deb	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
	mastitis in cattle with special reference to bacterial infection.		
Arunava Chakraborty	Pathology of induced **staphylococcus aurious** infection in rabbit.	T. L. Some	M. V. Sc. 2000
Pralhad Debnath	Pathological observations on broiler diseases in two districts in Nadia and North 24-Pgs. of West Bengal.	S. Mukhopadhayay	M. V. Sc. 2000
Kashinath Mahato	Studies on liver pathology of poultry (Layer).	D. K. Basak	M. V. Sc. 2000
Subhankar Mondal	Prevalence, clinopathology and pathomorphology of cutaneus acariases in rabbit.	M. K. Bhowmik	M. V. Sc. 2000
Mizanul Islam	Chromium toxicity in broiler chickens : status in Natural environment, clinicopathology, pathomorphology, immunopathology and detoxification.	M. K. Bhowmik	Ph. D. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4

Deptt. of Veterinary Anatomy, Histology and Embryology

Arindam Chatterjee	Comperative anatomical study of radial median and ulnar nerve (sub-carpal region) in Indian cow and Indian water buffalo.	M. M. Roy	M. V. Sc. 1999
Manas Kr. Bhattacharya	Studies on histo-architecture of skin of buffalo, cow, goat and Rabbit.	R. K. Ghosh	M. V. Sc. 2000
Ranjit Kr. Panja	Gross anatomical and histomorphological studies on large intestine of Rabbit	R. K. Ghosh	M. V. Sc. 2000
Haripada Maity	Gross anatomical & histo-morphological studies on liver of rabbit (*Oryctologus cuniculus*)	M. M. Roy	M. V. Sc. 2000
Subhasis Neogy	Studies on Gross anatomical and histomorphological architecture of stomach and small intestine of Rabbit (*Oryctologus cuniculus*)	M. M. Roy	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Rohit De	Studies on gross anatomical and histomorphological architecture of the Kidneys and intrarenal arterial disposition in Rabbit (*Oryctologus cuniculus*)	M. M. Roy	M. V. Sc. 2000

Deptt. of Gynaecology and Obstetrics

Neeraj Srivastava	Evaluation of awareness of livestock owners of cross-bred zone of West Bengal relating to certain reproductive parameters of their cows.	S. K. Bandopadhyay	M. V. Sc. 1999
Debrup Roy	Comparative evaluation of some non-conventional drugs for manifestation of oestrus and conception in post-parturient anaestrus non-descript cows of West Bengal.	R. Roychowdhury	M. V. Sc. 1999
Sribas Biswas	Effect of different hormonal methods on oestrus synchronization, superovulation and embryo recovery in black Bengal Goat.	B. B. Ghosh	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Ashes Pal	Studies on comparative efficacies of different methods of pregnancy diagnosis in sheep and goat alongwith its Haemato-biochemical constituents.	B. B. Ghosh	M. V. Sc. 1999
Utpal Kr. Singha	Studies on levels of certain blood biochemical profiles and different treatment schedules in anovulation and delayed ovulatory indigenous cows in West Bengal	R. Roychowdhury	M. V. Sc. 1999
Rabindra Mohan Mishra	Studies on vaginal cytology in different phases of oestrous cycle and pregnancy in bitch.	S. K. Bandyopadhyay	M. V. Sc. 1999
Indranil Bera	Synchronization of oestrus by synthetic progestrone and prostaglandin PGF 2a analogues and effects of the same on some biochemical parameters of blood in Black Bengal goats.	B. B. Ghosh	M. V. Sc. 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Promode Ranjan Nandi	Studies on endometritis in cross-bred cows and therapeutic efficacy of some antimicrobial drugs.	B. B. Ghosh	M. V. Sc. 1999
Falguni Chakraborty	Status of certain blood biochemical profiles in pregnant graded murrah buffaloes during different periods of gestation.	R. Roychowdhury	M. V. Sc. 2000
Utpal Kr. Das	Effectiveness of certain therapeutive means in the treatment of repeat breeding cows	R. Roychowdhury	M. V. Sc. 2000
Maniruzzaman Mallick	Studies on some biochemical attributes of foetal fluids and maternal blood in different stages of gestation in Black Bengal Goats.	B. B. Ghosh	M. V. Sc. 2000
Debasish Ghosh	Studies on Ante- and post-mortem pathological conditions of male genital organs of cow Bull and Buffalo Bull.	B. B. Ghosh	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Bhaskar Chaudhuri	Study on infertility in male dogs and its possible remedy.	S. K. Bandyopadhyay	M. V. Sc. 2000
Suhrita Das	Profiles of certain macro- and micro-minerals in blood of normal cycling anestrous and repeat breeder cross-bred cows under rural condition.	S. K. Bandyopadhyay	M. V. Sc. 2000
Gautam Chatterjee	Study on andro-logical investi-gation of cross-bulls in and around Haringhata, West Bengal.	S. K.Bandyopadhyay	M. V. Sc. 2000

Deptt. of Veterinary Physiology

Santanu Dutta	Preliminary study on growth, haematological and biochemical profiles on albino rabbit fed with some indigenous plants.	Mrs. S. Roy	M.V.Sc. 1999
Ashis Kumar Dey	Studies on Ferroxidase–I (ceruloplasmin) activity in haemopoiesis in Black Bengal (*Capra hircus*) goats.	S. Sanyal	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Prasanta Pal	Some haematological and biochemical profiles of Garole sheep during pregnancy, parturition and post-parturition periods.	B. N. Roy	M. V. Sc 2000
Dipak Kr. Manna	Studies on some blood constituents in black Bengal Goat (*Capra hircus*) and Garole Sheep (Ovi saries) reared under extensive management system in New Alluvial and coastal saline zone of West Bengal.	B. Bhattacharya	M. V. Sc. 2000

Deptt. of Veterinary Parasitology

Manik Chandra Bandopadhyay	Role of cecal tonsil cells sensitised against *Eimeria tenella* and their protective effect on cecal coccidiosis in broiler chicken.	A. Basu	M. V. Sc. *1999*
Santanu Acharya	Progressive migratory behavioral study of *Toxocara canis* larval a paratenesis in piglets.	N. K. Sasmal	M. V. Sc *1999*
Chandan Kumar Dasgupta	Studies on the bionomics of ixodid ticks infesting cattle with special reference to *Brophilus microplus*.	A. K. Basu	M. V. Sc. 1999
Malay Kr. Dutta	Detection of circulating antigen and antibody of *Fasciola gigantica* with special reference to its prevalence and pathological Changes.	C. K. Dasgupta	M. V. Sc. 2000

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4
Subhrangshu Sarkar	Electron microscopic studies and in vitro effects of some antelmintics and germicides on preotoscolices of buffalo pulmonary hydatid cyst alongwith their prevalence in cattle and buffaloes.	A. Basu	M. V. Sc 2000

Deptt. of Dairy Chemistry

Miss Sumita Das	Studies on the Quality of milk marketed in Calcutta and its suburbs.	P. K. Ghatak	M. Tech.(D.T.) 2000
Kaushik Sarkar	Studies on the chemical quality of market and laboratory made Burfi.	P. K. Ghatak	M. Tech.(D.T.) 2000
Babul Sikdar	Studies on the development of whey based mango Beverage.	P. K. Ghatak	M. Tech.(D.T.) 2000
Debashis Ghosh	Studies on the quality of market and laboratory made 'Jalbhara'.	P. K. Ghatak	M. Tech.(D.T.) 1999
Shiladitya Das	Preparation of protein enriched whey beverage from chhana whey.	P. K. Ghatak	M. Tech.(D.T.) 1999
Swapan Kr. Roy	Partial replacement of Buffalo milk with coconut milk for preparation of paneer.	A. K. Bandopadhyaya	M. Tech.(D.T.) 1999

Name of the student	Title of thesis	Name of Guide	Degree
1	2	3	4

Deptt. of Dairy Bacteriology

Sandip Basu	Studies on the Microbiological quality of ice-cream available in Calcutta region, West Bengal.	S. P. Sarkar	M. Tech.(D.T.) 2000
Bidyut Kr. Dey	Studies on the microbiological quality of indigenous milk sweets in Calcutta and its suburbs.	T. K. Maity	M. Tech.(D.T.) 2000
Rakhesh Shaw	Studies on preservation of paneer.	S. P. Sarkar	M. Tech.(D.T.) 2000
Shyama Prasad Sarkar	Quality of some fermented and unfermented indigenous Dairy products with LP treated milk.	R. K. Kuila	Ph. D. 2000
Tarun Maity	Studies on Preparation of Fermented Soya Milk products with Nutritive & Dietetic Properties	A. K. Mishra	Ph. D. 1999

Deptt. of Dairy Technology

Subarna Makhal	Preservation of paneer with Grass additives.	D. C. Sen	M. Tech.(D.T.) 2000
Sanjukta Mazumder	Instrumental measurements of characteristics of Rasogolla and Sandesh.	S. R. Chakraborty	M. Tech.(D.T.) 1999

17 Name of the Dignitaries Visited

1. **Mr. T. M. Singh,** Minister-in-charge, Deptt. of Animal Husbandry, Fisheries and Dairying, Govt. of Punjab.
2. **Dr. Ratan Singh Ajnala,** Director, Animal Husbandry and Dairy Development Govt. of Punjab.
3. **Dr. S. S. Baghel,** Vice-Chancellor, Central Agriculture University, Imphal, Manipur.
4. **Dr. K. Pradhan,** Vice-Chancellor, Orissa University of Agriculture and Technology, Bhubaneswar-751003, Orissa.
5. **Dr. Samir Bhattacharya,** Director, Indian Institute of Chemical Biology, Kolkata-700 032.
6. **Dr. M. P. Yadav,** Director, IVRI, Izatnagar-243122, Bareilly, U. P.
7. **Dr. B. N. Mathur,** Director, NDRI, Karnal, Haryana.
8. **Dr. J. S. Bhatia,** ADG (EPD), ICAR, Krishi Anusandhan Bhavan, Pusa, New Delhi-110012
9. **Dr. N. L. Mamya,** ADG (ACDN), ICAR.
10. **Dr. Kiran Singh,** DDG (Anim. Sci.), ICAR, Krishi Bhavan, New Delhi-110001.
11. **Dr. Lal Krishna,** ADG (AH), ICAR Krishi Bhavan, New Delhi-110001.
12. **Dr. G. L. Kaul,** Vice-Chancellor, Assam Agriculture University, Jorhat, Assam.
13. **Dr. V. K. Patil,** Vice-Chancellor, Indira Gandhi Krishi Viswavidyalaya, Raipur, M. P.
14. **Dr. P. Das,** DDG (Ag. Extn.). ICAR, Krishi Anusandhan Bhavan, Pusa, New Delhi-110012.
15. **Dr. S. L. Mehta,** Ex-DDG (Edn.), ICAR
16. **Dr. S. Ayappan,** Director, CIFE, Mumbai.
17. **Dr. K. Gopa Kumar,** DDG (Fishery), ICAR, Krishi Bhavan, New Delhi-110001.
18. **Prof. (Dr.) C. M. Singh,** President, Veterinary Council of India, Karolbagh, New Delhi-110005.
19. **Prof. (Dr.) Rama Kumar, V.** Secretary, Veterinary Council of India, Karolbagh, New Delhi-110005.
20. **Prof. M. A. Quddus,** M. P., Hon'ble Minister of State for Fisheries and Livestock, Bangladesh.
21. **Sri Narayan Rupini,** Minister-in-charge, Deptt. of ARD, Tripura.
22. **Dr. (Mrs) Hema Pandey,** Director. Institute of Agriculture for women, ICAR, Bhubaneswar.
23. **Dr. N. Sharma,** Jt. Director (Academic), I.V.R.I., Izatnagar, U. P.

18 List of Scientific Publications

Directorate of Research, Extension and Farms

1. A. Goswami and R. L. Sagar (1998). Utilisation of mass media and personal cosmopolite sources of information as the knowledge sources of the live stock owners with respect to selected animal husbandry practices. Indian Vet. J. 75, June, 517-519.

2. A. Goswami. and R. L. Sagar (1998). Factors related with the knowledge of the livestock owners about deworming and cultivation of green fodder. Indian J. Anim. Hlth. **37(1)** : 43-45.

3. A. Goswami, N. Roy, A. K. Mazumder and R. Duttagupta (1999). Study of socio-psychological and communication factors related with adoption of selected animal husbandry practices in saline belt of sundarban, W. B. Indian J. Anim. Hlth. **38(2)** : 151-152.

4. A. Goswami, N. Roy, A. K. Mazumder and R. Duttagupta (2000). Study of socio-psychological and communication factors related with the adoption of selected animal husbandry practices in non-saline belt of sundarban, W.B. Indian J. Anim. Hlth. **39(1)** : 5–7

5. A. Goswami, N. Roy, A. K. Mazumder and R. Duttagupta (2000). Factors related with the adoption behaviour of the livestock owners about deworming. Environment and ecology. **18(3)** : 768-771.

6. A. Goswami, N. Roy, A. K. Mazumder and R. Duttagupta (2000). Factors related with the adoption behaviour of the livestock owners about artificial insemination. J. Interacad. **4(2)** : 304-309.

7. A. Goswami, N. Roy, A. K. Mazumder and R. Duttagupta (2000). Behavioural study of the livestock owners to enhance the productivity in saline belt of sundarban, W. B. Indian J. Anim. Hlth. **39(2)** : 42-46.

8. A. Goswami, N. Roy, A. K. Mazumder and R. Duttagupta (2001). Factors related with adoption behaviour of livestock owners about vaccination against contagious diseases. Environment and Ecology. **19(1)** : 226-228.

9. N. Srivastava, A. Goswami, S. K. Bandyopadhay, R. Duttagupta and R. R. Choudhury (2001). Awareness of livestock owners about reproductive parameters of crossbred cows in relation to sources of information in W. B. Indian Vet. J. (Accepted).

10. N. Srivastava, S. K. Bandyopadhay, B. B. Ghosh and A. Goswami (2001). Evaluation of awareness and types of response of livestock owners about certain reproductive parameters of crossbred cows. Indian Vet. J. (Accepted).

11. N. Srivastava, S. K. Bandyopadhay, S. Basu, A. Goswami and R. Duttagupta (2001). Factors related to knowledge level of A. I. of the livestock owners in crossbred cattle zone of W. B. Indian J. Anim. Hlth. (Accepted).

12. A. Goswami, N. Roy, A. K. Mazumder, S. K. Ghosh and R. Duttagupta (2001). Utilisation of mass media and personal cosmopolite sources of information as the adoption sources of the livestock owners in relation to selected A. H. practices. Indian J. Anim. Hlth. (Accepted).

13. B. K. Chand (1999). Studies on effects of hideouts on survival and production rate of *Macrobrachium rosenbergii*. Indian J. Anim. Hlth. **38(1)** : 65-68.

14. B. K. Chand, S. Behera and A. K. Panigrahi (2000) Standardization of feeding strategies for monoculture of *Macrobrachium resenbergii* (de Man). Environment and Ecology **18(3)** : 732-737.

15. B. K. Chand (2000). Effect of aeration on water quality, growth and production of prawn in commercial farming. Indian J. Anim. Hlth. **39(1)**.

16. B. K. Chand, B. C. Patra and S. K. Das (2001). Effect of stocking density on harvest size of giant Freshwater Prawn (*Macrobrachium rosenbergii*). Indian J. Anim. Hlth. (Accepted).

17. B. K. Chand B. C. Patra and S. K. Das (2001). Growth and production of freshwater prawn and carp under polyculture system. J. Interacted. (Accepted).

18. B. K. Chand, S. Sarkar and M. Maragal (2001). Studies on heat penetration and biochemical characteristics of deep fat fried fish meant for canning. Fishery Technology. (Accepted).

19. S. K. Das, B. K. Chand and D. N. Saksena (2000). Ecology and population dynamics of phytoplankton in Brackish water traditional shrimp culture pond, North-east coast of India. Indian J. Anim. Hlth. **39(2)** : 65-70.

20. A. K. Panigrahi and B. K. Chand (1999). Impact of bottom grazing fishes in enhancing the yield of fish in pigfish integration system. Indian J. Anim. Hlth. **38(2)** : 165-169.

21. Satabdi Das and A. Kaviraj (1999). Effect of some chemicals on acute toxicity of cadmium to some aquatic organisms. Indian J. Anim. Hlth. **38(1)** : 69-71.

22. A. Kaviraj and S. Das (1999). Effects of fertilization on the deposition, partitioning and bioavailability of copper, zinc and cadmium in four perennial ponds of an industrial town. Indian J. Environ. Hlth. **41(1)** : 6–15.

23. Satabdi Das and A. Kaviraj (2000). Cadmium accumulation in different tissues of common carp Cyprinus carpio treated with activated charcoal EDTA and single superphosphate. Geobios. **27(2–3)** : 69–72.

24. Satabdi Das and A. Kaviraj (2000). Effectiveness of single superphosphate to control the toxicity of cadmium in aquatic ecosystem. J. Nat. Conserv. **12(1)** : 37–43.

25. Satabdi Das and A. Kaviraj (2001). Effect of chelating agent EDTA, adsorbent activated charcoal and chemical fertilizer single superphosphate on the partitioning of cadmium in the sediment – A short-term experiment. Poll. Res. (Accepted).

Faculty of Veterinary and Animal Sciences

Department of Vety. Gynaecology and Obstetrics

1. D. K. De, N. R. Pradhan and S. Basu (1998). Hydrocephalus in an Alsation pup – A case study. Indian J. Anim. Hlth. 37(1) : 89–90.

2. N. R. Pradhan, S Basu and D. K. De (1998). Therapeutic efficiency of Resant in the Treatment of Pastulated wounds in Cattle. Indian J. Ani. Hlth. 37(1) : 65–66.

3. P. S. Bhattacharya, S. K. Bandopadhyay, R. Roy Choudhury, C. Guha and R. Duttagupta. Creation of Putitary block in Rhesus Monkey (Macaca mulata). International J. Anim. Sci. 13 (1998) : 49–52.

4. G. L. Bandopadhyay, S. K. Bandopadhyay, R. Roychoudhury and T. L. Som (1998). Studies of certain aspects of repeat breeding and normal cyclic non-descript cows in West Bengal. Indian J. Anim. Hlth. 37(2) : 21–23.

5. S. Biswas, B. B. Ghosh, S. K. Bandopadhyay, M. M. Roy and P. K. Senapati (2000). Response of Buserelin (GNRH) on Synchronisation of Estrus and Multiovulation in Black Bengal Goat Treated with PMSG and PGF20C. J. Interacad. 4(2) : 290–293.

6. B. B. Ghosh, R. Roychoudhury, S. K. Bandopadhyay, K. Sarkar and S. Basu (2000). Study on hatching performance of offspring of testosterone treated chick embryo. Inter. J. Anim. Sci. 15(2) : 157–159.

7. G. L. Bandopadhyay, S. K. Bandopadhyay, R. Roychoudhury, S. Basu and R. Dutta Gupta (2000). Mineral and Vitamin induced Sex-Ratio alteration in cattle. Environ. Ecol. 18(4) : 1043–1045.

8. I. Bera, B. B. Ghosh, S. Basu and S. K. Bandopadhyay (2001). Plasma Progesterone Level in cyclic Black Bengal does. Environ. Ecol. 19(2) : 302–303.

9. D. Roy, R. Roychoudhury, S. K. Bandopadhyay, B. B. Ghosh and R. Dutta Gupta (2001). Efficacy of some non-hormonal drugs for manifestation of oestrus and conception in post-parturient anoestrous non-descript cows of West Bengal. Environ. Ecol. 19(2) : 296–298.

10. N. Srivastava, S. K. Bandopadhyay, S. Basu, A. Goswami and R. Roychoudhury (2000). Factors related to knowledge level of A. I. of the Livestock owners in crossbred cattle zone of West Bengal. Indian J. Anim. Hlth. (Accepted).

11. P. R. Nandi, B. B. Ghosh, S. K. Bandopadhyay and R. Roychoudhury (2000). Bio-chemical studies of Cervico-Vaginal Musus of repeat breeding cows in Genital Infection. Indian J. Anim. Hlth. (Accepted).

12. P. R. Nandi, B. B. Ghosh, S. K. Bandopadhyay and R. Roychoudhury (2001). Studies of some serum trace Minerals of repeat breeding cows. Indian J. Anim. Hlth. (Accepted).

Department of Anatomy, Histology & Embryology.

1. T. Bhattacharya, M. K. Bhowmik and M. M. Roy (1999). Effect of infectious stunting syndrome on growth and organ weight of Broiler chicken. J. Interacad **3 (3 & 4)** : 313–316.

2. S. K. Bose, M. K. Bhowmik and M. M. Roy (1999). In-Vivo immuno-suppression in goats induced with chronic cadmium toxicity. Indian J. Anim. Hlth. **38(2)** : 98–99.

3. S. Biswas, B. B. Ghosh, S. K. Bandopadhyay, M. M. Roy and P. K. Senapati (1999). Response of buserelin (GNRH) on synchronisation of estrus and multiovulation of Black Bengal Goat treated with PNSG and PG2α. J. Interacad. **4(2)** : 290–293.

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9. D. Das, P. K. Ghatak and A. Das (1999) Laboratory made Sitabhog. **J. Dairying Food Home Sci. 18** : 127
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12. A. Sur, P. K. Ghatak and A. K. Bandyopadhyay (1999) Studies on the shelf life on buffalo milk rosogolla in metallised Polyester Package. **Indian J. Dairy and Bio Sci. 10** : 38
13. P. R. Ray, A. K. Bandyopadhyay and P. K. Ghatak (1999) Quality of laboratory made cow and buffalo milk Peda. **Indian J. Anim. Health. 38** : 171
14. P. R. Ray and P. K. Ghatak (1999) Flavour defect of Soy milk Products. **processed Food Industry 12** : 41
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Faculty of Fishery Sciences

Deptt. of Fish Pathology

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Department of Fishery Engineering

1. Talwar. N.A. and Sheshappa, D.S., 1999. 'Effect of square mesh panels in trawls on shrimp fishery off Manglore' In proceed. of the fourth Fisheries Forum during 24-28. Nov. 1996. kochi. p. 445-447.

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1. Dana S.S., and Kaul, P.N., (2000). "Fishing Practices of Santhal Tribe" Ind. J. Anim Hlth. Vol 38(2) pp. 157-159.
2. Dana, S.S., and Kaul, P.N., (2000). "Indeginous Technical Knowledge in Veterinary Medicine among Tribals." 34(1) : Ind. J. Anim Res. 56-59
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Dept of fishery oceanography & Limnology

1. Trivedi, R.K. and Gupta, T.R.C. (1999): Sediment Characteristics of fresh water bodies of Mangalor, Karnataka, **J. Ecobil.**, India. II(1): 59-64.
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3. Trivedi, R. K. and Rout, S.K. (2000): Canals: A prospective Inland Fishery source of Bihar. **Fishing Chimes**, 24-25.
4. Rayan, E.K., Abraham, T. J. and Rout, S.K. (2000): Chemical Control of filamentous bacterium **Leucothrix mucor** in a commercial **P. monodon hatchery. Environ. Ecol.** Accepted.
5. Das, B.K. and Kaviraj, A. (2000): Effects of Cobalt Chloride and dietary Vitamin B complex on the Accumutation of Cadmium and growth of common carp **Cyprinus carpis** (lyprinidu). **Italian J. of** zoology, Italy Accepted.

19 List of Faculty Members

A. Faculty of veterinary & Animal Sciences

Prof. (Dr.) D.P. Banerjee, M.V. Sc., Ph.D.,F.C.A.I., Post—Doct. (London)
Dean, Faculty of Veterinary and Animal Sciences

1. Department of Veterinary Anatomy, Histology & Embryology

Name	Qualification	Designation
1. Prof. (Dr.) R.K. Ghosh	M.V.Sc.,Ph.D.	Professor
2. Prof. (Dr.) M.M. Roy	M.V.Sc.,Ph.D.	Professor
3. Dr. S. Roy	M.V.Sc.	Lecturer
4. Dr. P. Das	M.V.Sc.	Lecturer

2. Department of Veterinary Surgery & Radiology

1. Prof. (Dr.) D.K. Dey	M.V.Sc.,Ph.D.	Professor
2. Prof. (Dr.) T.B Sen	M.V.Sc.,Ph.D.	Professor
3. Dr. P.K. Samanta	M.V.Sc.,Ph.D.	Reader (Re-employed)
4. Dr. (Mrs.) S. Hazra	M.V.Sc.	Lecturer
5. Dr. S.K. Nandi	M.V.Sc.	Lecturer
6. Dr. S. Halder	M.V.Sc.	Lecturer
7. Dr. D. Ghosh	M.V.Sc.,Ph.D.	Lecturer
8. Dr. S. Guha	M.V.Sc.	Lecturer

3. Department of Veterinary Gynaecology & Obstetrics

1. Prof. (Dr.) B.B. Ghosh	M.V.Sc.,Ph.D.	Professor
2. Prof. (Dr.) S.K. Bandhopadhyay	M.V.Sc.,Ph.D.	Professor (Re-employed)
3. Dr. S.K. Basu	M.V.Sc.,Ph.D.	Reader
4. Dr. S.K. Ray	M.V.Sc.,Ph.D.	Reader
5. Dr. P.R. Nandi	M.V.Sc.	Lecturer
6. Dr. U. Dutta	M.V.Sc.	Lecturer
7. Dr. (Mrs.) K. Roy	M.V.Sc.	Lecturer

4. Department of Veterinary Pathology

1.	Prof. (Dr.) M.K. Bhowmik	M.V.Sc.,Ph.D. FEFN (WWF, USA)	Professor
2.	Prof. (Dr.) D.K. Basak	M.V.Sc.,Ph.D.	Professor
3.	Dr. (Mrs.) P. Deb	M.V.Sc.	Professor
4.	Dr. T.L. Som	M.V.Sc.,Ph.D.	Reader (Re-employed)
5.	Dr. S.K. Mukhopadhyay	M.V.Sc.	Sr. Lecturer

5. Department of Veterinary Microbiology

1.	Prof. (Dr.) (Mrs.) R. Das	M.V.Sc.,Ph.D.	Professor
2.	Prof. (Dr.) J.P. Ray	M.V.Sc.,Ph.D.	Professor
3.	Dr. P. Sarkar	M.V.Sc.,Ph.D.	Reader (Re-employed)

6. Department of Veterinary Physiology

1.	Prof. (Dr.) D.K. Nandi	M.V.Sc.,Ph.D.	Professor
2.	Prof. (Dr.) (Mrs.) S. Ray	M.Sc.,Ph.D.	Professor
3.	Prof. (Dr.) B.N. Roy	M.V.Sc.,Ph.D.	Professor (Re-employed)
4.	Prof. (Dr.) B. Bhattacharya	M.V.Sc.,Ph.D.	Professor (Re-employed)
5.	Dr. S. Sanyal	M.V.Sc.,Ph.D.	Reader
6.	Dr. M.K. De Sarkar	M.V.Sc.,Ph.D.	Reader (Re-employed)
7.	Dr. P.K. Das	M.V.Sc.	Lecturer

7. Department of Veterinary Bio-chemistry

1.	Prof. (Dr.) S.P. Ghosh	M.V.Sc.,Ph.D.	Professor (Re-employed)
2.	Dr. S. Batabyal	M.V.Sc.,Ph.D.	Lecturer
3.	Dr. S. Chattopadhyay	M.V.Sc.,Ph.D.	Lecturer

8. Department of Veterinary Parasitology

1.	Prof. (Dr.) C.K. Dasgupta	M.V.Sc.,Ph.D.	Professor
2.	Prof. (Dr.) N.K. Sasmal	M.V.Sc.,Ph.D.	Professor
3.	Prof. (Dr.) A. Basu	M.V.Sc.,Ph.D.	Professor (Re-employed)
4.	Dr. J. D. Ghosh	M.V.Sc.,Ph.D.	Reader
5.	Dr. G. S. Mukherjee	M.V.Sc.,Ph.D.	Reader (Re-employed)

9. Department of Animal Production & Management

1.	Prof. (Dr.) S. C. Mazumder	M.V.Sc.,Ph.D.	Professor
2.	Prof. (Dr.) M. K. Agasti	M.Sc.(Ag),Ph.D.	Professor
3.	Prof. (Dr.) D. N. Maitra	M.V.Sc.,Ph.D.	Professor (Re-employed)
4.	Prof. (Dr.) S. K. Roy	M.V.Sc.,Ph.D.	Professor (Re-employed)
5.	Dr. S. Pan	M.Sc.(Dairying),Ph.D. FEFN (WWF, USA)	Reader
6.	Dr. A. K. Samanta	M.V.Sc.,Ph.D.	Reader
7.	Dr. R. Samanta	M.V.Sc.,Ph.D.	Reader

10. Department of Animal Nutrition

1.	Prof. (Dr.) G. Samanta	M.V.Sc.,Ph.D.	Professor
2.	Prof. (Dr.) T. K. Ghosh	M.V.Sc.,Ph.D.	Professor
3.	Dr. P. Biswas	M.V.Sc.,Ph.D.	Reader
4	Dr. B. Roy	M.V.Sc.,Ph.D.	Reader
5.	Dr. S. Halder	M.V.Sc.	Lecturer
6.	Dr. Rajendran	M.V.Sc.	Lecturer

11. Department of Animal Genetics & Breeding

1.	Prof. (Dr.) S. K. Misra	M.Sc.(Ag.),Ph.D.	Professor
2.	Prof. (Dr.) A. K. Chatterjee	M.V.Sc.,Ph.D.	Professor (Re-employed)
3.	Prof. (Dr.) R. Sinha	M.V.Sc.,Ph.D.	Professor (Re-employed)
4.	Prof. (Dr.) R. Dutta Gupta	M.V.Sc.,Ph.D.	Professor (Re-employed)
5.	Dr. P. K. Senapati	M.V.Sc.,Ph.D.	Reader
6.	Dr. A. K. Sahoo	M.V.Sc.,Ph.D.	Reader
7.	Dr. N. P. Koley	BVSc. & AH., M.Sc.(Ag.),Ph.D.	Reader (Re-employed)
8.	Dr. S. K. Ghosh	M.V.Sc.,Ph.D.	Sr. Lecturer

12. Department of Animal Products Technology & Marketing

1.	Dr. S. Biswas	M.V.Sc.,Ph.D.	Reader
2.	Dr. S. Ray	M.V.Sc.,	Reader (Re-employed)

13. Department of Veterinary Pharmacology & Toxicology

1.	Dr. T.K. Mondal	M.V.Sc.,Ph.D.	Reader
2.	Dr. A.K. Chakraborty	M.V.Sc.,Ph.D.	Reader (Re-employed)

14. Department of Veterinary Medicine, Ethics & Jurisprudence

1.	Prof. (Dr.) A. Chakraborty	M.V.Sc.,Ph.D.	Professor
2.	Dr. S. Sarkar	M.V.Sc.,Ph.D.	Reader
3.	Dr. C. Lodh	M.V.Sc.,Ph.D.	Lecturer

15. Veterinary Public Health

1.	Prof (Dr.) A.K. Pramanik	MVPH,Ph.D.	Professor

16. Department of Epidemiology and Preventive Veterinary Medicine

1.	Dr. N.R. Pradhan	M.V.Sc.,Ph.D.	Professor
2.	Dr. C. Guha	M.V.Sc.,Ph.D.	Reader
3.	Dr. U. Biswas	M.V.Sc.	Lecturer

17. Department of Veterinary & A.H. Extension Education

1.	Dr. A. Goswami	M.V.Sc.	In-charge

B. Faculty of Dairy Technology

Dr. A.K. Bandyopadhyay M.Sc.(DC), Ph.D
Dean, Faculty of Dairy Technology (Actg.)

1. Department of Dairy Bacteriology

1.	Prof. (Dr.) A.K. Misra	M.Sc.(DB), Ph.D	Professor
2.	Dr. S.P. Sarkar	M.Sc.(DB), Ph.D	Reader & Head
3.	Dr. T.K. Maiti	M.Sc.(DB), Ph.D	Sr. Lecturer

2. Department of Dairy Technology

1.	Prof. (Dr.) D.C. Sen	M.Sc.(DT), Ph.D	Professor
2.	Prof. (Dr.) S.R. Chakraborty	M.Sc.(DC), Ph.D	Professor
3.	Prof. (Dr.) M.K. Sanyal	M.Sc.(DT), Ph.D	Professor
4.	Dr. S.C. Paul	M.Sc.(DT), Ph.D	Reader
5.	Dr. S.K. Gangopadhyay	M.Sc.(DT), Ph.D	Sr. Lecturer

3. Department of Dairy Engineering

1.	Prof. (Dr.) B. Malakar	M.Tech., Ph.D	Professor
2.	Sri S.K. Sarkar	M.Sc.	Reader
3.	Sri P. Maity	M.Sc.(DE)	Sr. Lecturer
4.	Sri P.K. Roy	M.Sc.(DE)	Lecturer
5.	Sri S.K. Bag	M.Sc.(DE)	Lecturer

4. Department of Dairy Chemistry

1.	Prof. (Dr.) A.K. Bandyopadhyay	M.Sc.(DC),	
2.	Prof. (Dr.) P.K. Ghatak	M.Sc.(DC), Ph.D.	Ph. D. Professor
3.	Sri P.R. Roy	M.Sc.(DC)	Professor
			Lecturer

C. Faculty of Fishery Sciences

Prof. (Dr.) K.C. Dora M.F. Sc., Ph.D
Dean, Faculty of Fishery Sciences (Acting)

1. Department of Fish Aquaculture

1.	Prof. (Dr.) N.R. Chatterjee	M.Sc., Ph.D	Professor
2.	Dr. T.K. Ghosh	M.Sc., Ph.D	Sr. Lecturer
3.	Dr. S.K. Das	M.Sc., Ph.D	Sr. Lecturer

2. Department of Fishery Biology

1.	Dr. Sudhir Kr. Das	MFSc., Ph.D	Reader
2.	Dr. S. Behara	MFSc., Ph.D	Lecturer
3.	Dr. T.S. Nagesh	MFSc.	Lecturer

3. Department of Fishery Pathology and Microbiology

1.	Dr. T.J. Abraham	MFSc., Ph.D	Reader
2.	Sri G. Das	MFSc.	Lecturer
3.	Dr. S.N. Joardar	MV.Sc. Ph.D.	Lecturer

4. Department of Oceanography & Limnology

1.	Dr. R.K. Trivedi	MFSc., Ph.D	Reader
2.	Dr. B.K. Das	M.Sc., Ph.D	Sr. Lecturer
3.	Dr. S.K. Rout	MFSc.	Lecturer

5. Department of Fish Processing Technology

1.	Prof. (Dr.) K.C. Dora	MFSc., Ph.D	Professor
2.	Sri S. Sarkar	MFSc.	Lecturer
3.	Dr. U. Saha	MVSc.	Lecturer

6. Department of Fishery Engineering

1.	Sri N.A. Talwar	MFSc.	Lecturer
2.	Sri E. Kathavarayan	MFSc.	Lecturer

7. Department of Fishery Economics And Statistics

1.	Dr. (Mrs.) S. Jana	M.A., Ph.D.	Lecturer
2.	Sri A. Mondal	MFSc.	Lecturer
3.	Sri S. Sahoo	M. Stat.	Lecturer

8. Department of Fishery Extension & Basic Education

1.	Dr. S.S. Dana	M.V.Sc., Ph.D.	Reader
2.	Dr. A.K. Panigrahi	M.Sc., Ph.D.	Lecturer
3.	Mrs. P. Bandopadhyay	MFSc.	Lecturer

D. Directorate of Research, Extension & Farms

1.	Prof. (Dr.) M.K. Bhowmik	M.V.Sc., Ph.D. FEFN (WWF, USA)	Director of Research, Extension & Farms (Actg)
2.	Dr. S.P. Roy	M.V.Sc., Ph.D.	Deputy Director (Research)
3.	Dr. A. Goswami	M.V.Sc.	Asstt. Director (Extn.)
4.	Dr. P.K. Biswas	M.V.Sc.	Asstt. Director (Research)
5.	Dr. M.S. Kundu	M.V.Sc., Ph.D.	Asstt. Director (Farm)
6.	Sri. B.K. Chand	M.F.Sc.	Farm Manager
7.	Dr. (Mrs.) S. Das	M.Sc., Ph.D.	Scientist
8.	Dr. B.K. Biswas	M..V.Sc.	Scientist
9.	Mrs. A. Biswas	M.C.A.	Computer Programmer

(20) Participation in Conference, Meetings, Seminar. Symposium & Workshop etc.

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists/ Officers with designation.
1	2	3	4
Meeting on "Proposal to establish a National Bureau of Agriculturally important microbes and Insects under ICAR"	NBPGR auditorium, New Delhi	2-4th Sept., 1999	Dr. A. K. Bhattacharya Vice-chancellor
National Conference on "Agriculture for Rabi Campaign".	New Delhi	20-21st Sept., 1999	—Do—
Livestock workshop under National Agricultural Technology Project (NATP)	New Delhi	12-13th Oct., 1999	—Do—
Golden Jubilee Celebration of Co-operative movement in Tripura	Tripura	11-13th Nov., 1999	—Do—
Meeting on Tissue Culture Vaccine.	New Delhi	19-20th Nov., 1999	—Do—
Vice-Chancellor's Conference	New Delhi	8th Dec., 1999	—Do—
International symposium on Agricultural Education	New Delhi	13th Dec., 1999	—Do—
IV Annual Convention & National symposium on current concepts.	Bangalore	16th Dec., 1999	—Do—
Programme for Ministry of culture & youth affairs.	New Delhi	13-15th Jan., 2000	—Do—

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists/ Officers with designation.
1	2	3	4
Seminar on problems and prospects of Milk Production and its marketing in NE region	Agartala	3-6th June, 2000	—Do—
Meeting on Development and catch-up grant	New Delhi	2-5th Aug., 2000	—Do—
Meeting on Accreditation of University under ICAR	Guwahati	8-11th Nov., 2000	—Do—
V.C.s' conference of SAUS and National symposium on accreditation for quality Assurance.	New Delhi	19-25th Nov., 2000	—Do—
National workshop on Bio-informatics & Statistics in Agril. Research	Bhubaneswar	16-17th Jan., 2001	—Do—
Agril. — Expo, 2001	Lucknow	17th Feb., 2001	—Do—
International Symposium on "Agricultural Education in the next century— Lesson learnt & prospect."	Bigyan Bhavan New Delhi	9-11th Dec., 1999	Dr. D. N. Jana Registrar
National symposium on "Accreditation for quality assurance in agricultural educatioin."	NBPGR auditorium, New Delhi	23-24th Nov., 2000	—Do—
Workshop on "Role of women in livestock & fishery development."	WBUAFS, Kolkata	12-13th Sept., 2000	—Do—

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists / Officers with designation.
1	2	3	4
First meeting of the "Working group of the Planning Commission on Animal Husbandry and Dairying" for the formulation of draft 10th five yr. Plan	Yojana Bhaban New Delhi	19th Dec., 2000	—Do—
Second meeting of sub-group of planning Commission on Animal Husbandry & Dairying	Yojana Bhaban New Delhi	—	—Do—
Seminar on "Breeding policy of cattle & buffalo in West Bengal."	Bidyut Bhaban Kolkata	17th March, 2001	—Do—
National Symposium on current concepts in Animal and Poultry diseases New Millenium Approach	—	11-13th Dec., 2000	Dr. M. K. Bhowmik DREF (Actg.)
Indian Science Congress	IARI, New Delhi	03-06th Jan., 2001	—Do—
Scientists Meet AICRP on goat improvement	Udaipur	12-13th Feb., 2001	—Do—

Faculty of Veterinary and Animal Sciences

Animal Nutrition Society Conference.	Hyderabad	December, 1999	Dr. T. K. Ghosh, Prof. Dr. P. Biswas, Reader
V International Symposium on the Nutrition of Herbivores.	Texas, U.S.A.	April, 1999	Dr. G. Samanta, Prof.
1st National Symposium on recent techniques to augment fertility and productivity in farm animals.	WBUAFS Calcutta	20-21st March 1999	Dr. T. K. Ghosh, Prof. Dr. G. Samanta, Prof. Dr. A. K. Pramanik, Prof. Dr. A. K. Samanta, Reader
National Seminar on Nutrition, Breeding & Health.	Bangalore	11-13th June, 1999	Dr. P. Biswas, Reader

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists/ Officers with designation.
1	2	3	4
IX Annual Animal Nutrition Research Workers conference.	CCS, Hissar	November, 2000	Dr. T. K. Ghosh, Prof. Dr. D. Rajendran, Lect. Dr. S. Halder, Lect.
Workshop on Role of Women in livestock & Fishery Sectors.	DREF, WBUAFS	12-13th September, 2000	Dr. A. Chakraborti, Prof.
Technical seminar on the place of application and adoption of modern technology in Animal sciences.	Bankura, ARD Deptt., West Bengal	24-26th January, 2001	Dr. A. Chakraborti, Prof.
Refresher course on "Advances of Livestock production & Management".	DREF, WBUAFS Kolkata	29th March, 2000	Dr. S. Sarkar
Summer School on "PCR & related techniques in disease diagnosis".	Chennai, TANUVAS	17th July to 6th Aug. 2000	Dr. U. Biswas, Lecturer
Conference on 'Veterinary Public Health'.	Kolkata	21-22nd October, 2000	Dr. U. Biswas, Lecturer Dr. C. Lodh, Lecturer Dr. A. K. Samanta, Reader
Training programme on "Small Animal Practice".	Chennai TANUVAS	November 2000	Dr. C. Lodh, Lecturer
National conference of Anatomical Society of India.	M.L.B. Lakhsmiby Medical College, Jhansi	27-29th December, 1999	Dr. R. K. Ghosh, Prof.
15th Annual conference of Indian Association of Veterinary Anatomists.	Madras vety. College, Chennai	23-25th December, 2000	Dr. M. M. Roy, Prof.
International congress on Frontiers in Pharmacology and Toxicology.	New Delhi	1-4th December, 1999	Dr. A. K. Chakraborty, Prof. Dr. T. K. Mondal, Reader

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists / Officers with designation.
1	2	3	4
XV Annual convention of Indian Society.	Punjab Agril. Univ., Ludhiana	February. 1999	Dr. S. K. Bandopadhyay, Prof. Dr. S. Basu, Reader
National symposium on Recent Techniques to Augment fertility and reproduction on Farm animals.	F/c. of Vety. & Anim. Sci., WBUAFS, Belgachia	March, 1999	Dr. B.B. Ghosh, Prof.
Seminar on 'Management of quality of Raw Milk'.	Mohanpur, WBUAFS	February, 1999	Dr. B.B. Ghosh, Prof.
Seminar on 'Broiler chicken production, processing and marketing'.	Belgachia, WBUAFS	March, 1999	Dr. B.B. Ghosh, Prof. Dr. A.K. Pramanik, Prof.
National symposium on 'Livestock development, planning, prospects and challenges in 21st century.	Belgachia, WBUAFS	January, 2000	Dr. B.B. Ghosh, Prof.
All India Annual conference and seminar on the theme of "Veterinary Public Health in 21st century".	Kolkata	October, 2000	Dr. B.B. Ghosh, Prof.
National symposium on Reproduction Management for optimising production from Livestock and 16th Annual Convention of the Indian Society for the study of Animal Reproduction.	Ranchi Vety. College, Ranchi.	November 6-8th, 2000	Dr. S. Ghosh, Prof. Dr. B.B. Basu, Reader
Summer School on 'New Technologies in Animal Reproduction.'	Madras Vety. College,	21-6-2000 to 11-7-2000	Dr. S.Basu, Reader

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists/ Officers with designation.
1	2	3	4
National Symposium and 6th Annual convention of Indian Society for Vety. Immunology & Bio-Technology.	Alipore, Kolkata	6-2-1999	Dr. (Mrs.) R. Das, Prof. Dr .I P. Roy, Prof.
Seminar on Vety. Public Health on 21st century.	Kolkata	21-22nd October, 2000	Dr. C. Guha, Reader
XVII Annual convention of Indian Society of Vety. Medicine & National symposium on "Sustainable development in Animal Health care measures vision for future".	Bhubaneswar Orissa	5-7th February, 2001	Dr. A.K. Pramanik. Prof.
2nd all India Conference of Association of Public Health Veterinarians and seminar on 'Hygienic meat production & processing for production of Human health".	State Youth Centre, Calcutta	13-14th November, 1999	Dr. A.K. Pramanik, Prof.
Summer School on 'Modern Housing Management of poultry'.	Namakkal, Tamilnadu		Dr. R. Samanta, Reader.
Refresher course on 'Molecular aspects of bio-diversity and bio-technology.'	Viswavarati, Santiniketan		Dr. R. Samanta, Reader.
Seminar on 'Rural Poultry farming.'	Barapani, Shilong		Dr. R. Samanta, Reader.
Summer School on 'Nutrition and feeding of wild mammals.'	IVRI	December 21, 1999 to January, 21,2000	Dr. A.K. Samanta, Reader
Summer School on 'New Technology in Animal reproduction.'	M.V.C.	June 21 to July 11, 2000	Dr. A.K. Samanta, Reader

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists/ Officers with designation.
1	2	3	4
Refresher course on 'Health Management of wild animals.	W.H., Dehradun	Nov. 27 to Dec. 8, 2000	Dr. A. K. Samanta, Reader
Workshop of AICRP on 'Goat Improvement.'	Udaipur Rajasthan	10-12th February, 20001	Dr. A.K. Samanta, Reader
IVRA XII International congress in Japan.	Japan		Dr. T. B. Sen, Prof.
XXII ISVA annual congress and National symposium.	Bhubaneswar		Dr. T. B. Sen, Prof.
Annual conference of the society of Veterinary Pharmacology & Toxicology.	PAU, Ludhiana	November 1, 2000	Dr. T. K. Mondal, Reader.
Eastern India conference of Indian Pharmacological Society.	Burdwan, W.B.	January, 2001	Dr. A. K. Chakraborty, Prof. Dr. T. K. Mondal
National symposium on 'Topics of current interest in Pathology of Animal and poultry diseases— the millennium approach.'	Hebbal, Bangalore	25-27th November, 1999	Dr. M. K. Bhowmik, Prof.
National symposim on 'Current concept in Animal & Poultry diseases. New millennium approach & XVII – Annual conference of Indian Assocn. of Vety. Pathologist,	Akola, India	11-13th December, 2000	Dr. M. K. Bhowmik, Prof. Dr. T. L. Some, Prof. Dr. (Mrs.) P.Deb, Prof.
International seminar on "Royal Bengal Tigers" in twenty-first century.	Rotary Sadan, Kolkata	20-11-1999	Dr. S. Mukherjee, Sr. Lect.
Seminar on 'Higher education, New Frontiers & challenges,	MMC College, Calcutta	26-27th August, 2000	Dr. S. Mukherjee, Sr. Lect.

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Seminar on 'Role of computer technology' in syllabus of graduate.	M. K. College (CU), Calcutta	16th November, 2000	Dr. S. Mukherjee, Sr. Lect.
Sixth annual convention and Indian technology society for veterinary immunologists ISVIB	RBS Auditorium Kolkata	4-6th February, 1999	Dr. S. Mukherjee, Sr. Lect.
National Conference on 'Aquaculture and steps to maintain high production.'	Belgachia, WBUAFS	21-22nd January, 2000	Dr. S. Mukherjee, , Sr. Lect.

Directorate of Research, Extnesion & Farms

Training programme on Breeding & Hatchery Management of giant fresh water prawn, *M. rosenbergii*.	Central Institute of fresh water aquaculture, Bhubaneswar	5-15th October, 1999	Sri B. K. Chand, Farm Manager
Summer School in remote sensing in agriculture with special emphasis on training the trainees.	IARI, New Delhi.	5-26th April, 1999	Sri B. K. Chand, Farm Manager
Seminar on sixth West Bengal State Science and Technology Congress.	Howrah, W.B.	26-28th February, 1999	Sri B. K. Chand, Farm Manager
Seminar on seventh West Bengal State Science & Congress.	Jadavpur University, Kolkata	2000	Sri B. K. Chand, Farm Manager
International Conference on processed food for 21st century.	Science City, Calcutta	14-16th January, 2000	Sri. B. K. Chand, Farm Manager

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists / Officers with designation.
1	2	3	4
National seminar on Aquaculture and steps to maintain high production.	WBUAFS, Kolkata	21-22nd January, 2000	Sri B. K. Chand, Farm Manager & Dr. (Mrs.) S. Das, Scientist Dr. N. R. Chatterjee. Prof., Dr. A. Goswami, Asstt. Dir. (Extn.)
Training programme on 'Computer & Graphical Assisted Multivariate Data Analysis.	IASRI	8-20th March. 1999	Mrs. A. Biswas, Computer Programmer
Refresher course on 'Coastal Zone Management'.	Jadavpur University	22 Feb— 18 March' 01	Dr. (Mrs.) S. Das, Scientist

Faculty of Dairy Technology

National Seminar on 'Perspective of value added dairy products,.	Sisir Mancha Kolkata	13-14 April' 98	Dr. D. C. Sen, Prof.
Seminar on 'Management of quality of raw milk,.	F/DT, Mohanpur	27 Feb, 99	Dr. D. C. Sen, Prof. Dr. P. K. Ghatak Dr. A. K. Bandapadhyay, Prof.
Scientific meeting on 'Foreignsic & Food Science in the next millennium,.	ATI, Salt Lake, Kolkata	13th Nov' 99	Dr. D. C. Cen, Prof.
National Seminar On 'Industry & institution interface on dairy development,.	F/DT. Mohanpur	25 Nov' 99	Dr. D. C. Sen, Prof. Dr. P. K. Ghatak Dr. A. K. Bandapadhyay, Prof.
National seminar on 'Dairying in Eastern region-past trends & future prospects,.	NDDB campus Salt Lake	26 Feb, 00	Dr. D. C. Sen, Prof. Dr. P. K. Ghatak Dr. A. K. Bandapadhyay, Prof.
National symposium on 'Recent techniques to augment fertility & productivity in farm animals.	WBUAFS Kolkata	20-21 Mar' 99	Dr. S. C. Paul. Sr. be Dr. P. K. Ghatak

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists / Officers with designation.
1	2	3	4
International conference on processed food for 21st century.	Science City Kolkata	14-16 Jan' 00	Dr. P. K. Ghatak Dr. S. K. Gangopadhyay Mr. P. R. Roy, Sr. Lec
XXX Dairy Industry Conference	Do	8-9 Dec, 00	Dr. S. K. Gangopadhyay Dr. P. K. Ghatak. Prof. A. K. Bandapadhyay & Mr. P. R. Roy
4th international food conference	C.F.T.R.I. Mysore	23-27 Nov' 98	Dr. P. K. Ghatak
Seminar on "Quality, processing of Milk Sweet."	Jadavpur University, Kolkata	20 Dec, 98	Dr. P. K. Ghatak
Workshop on 'Problems & prospects of dairying in Eastern & North Eastern India,.	ERS of NDRI Kalyani	17-18 Nov, 00	Dr. P. K. Ghatak

Faculty of Fishery Sciences

Training programme on 'Aquatic microbiology & fish microbiology diseases,.	CIFA (ICAR), Bhubaneswar	25 April–1st May, 00	G Dash.
Essentials of E/IA studies related to Aquaculture projects	CIFA (ICAR), Mumbai	17 Mar – 31 Mar' 99	G. Dash
Winter School on recent advances in fish & shellfish Health Management.	Dept. of Aquaculture Mangalore	6–25 Nov' 00	Dr. T. J. Abraham Reader
Disease diagnosis in aquaculture with special reference to immunodiagnostics.	CIFA (ICAR), Mumbai	3–17 Feb, 99	Dr. T. J. Abraham, Read
Fifth Indian Fisheries forum	CIFA, Bhubaneswar	17–21 Jan' 00	Dr. R. K. Trivedi Reader Mr. E. Kathavarayan Mr. T. S. Nagesh

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists / Officers with designation.
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National conference on Aquaculture & steps to maintain high production.	WBUAFS Kolkata	21-22 Jan' 00	Prof. N. R. Chatterjee Dr. R. K. Trivedi Mr. E. Kathavarayan Mr. N. A. Talwar, Dr. S. K. Das, Reader Dr. B. K. Das, Sr. Lec Mr. T. S. Nagesh, Lec Mr. S. Sarkar, Lec Mr. S. K. Paul, Lec
Summer school on 'Participatory rural appraisal & aquaculture : prospects & prospective,.	Dept. of Extn. Education Jorhat.	19–28 July' 99	Mr. S. Sarkar, Lec
Workshop on Current & emerging trend in fish processing technology,.	WBUAFS, Kolkata	D.R.E.F.	27–28 June' 00 Mr. S. Sarkar
CAS Training programme on 'Quality management in export of seafood products,.	CIFE, Mumbai	21 Dec' 00 – 8 Jan' 01	Mr. S. Sarkar
National workshop on 'Fishery Science in 21st Century'.	F/F Sc, WBUAFS	17 July' 98	Mr. S. Sarkar
International conference on 'Ecological Engineering'	Science City Kolkata	23–28 Nov' 98	Dr. (Mrs.) S. Jana, Reader
National workshop on Bioinformatics & statistics in Aquaculture research,.	CIFA Bhubaneswar	16–19 Jan' 01	Dr. (Mrs.) S. Jana, Reader
Seminar on 'Fishery Economics' Training programme on 'Recent advances in Extension Research Methology,.	F/FS, WBUAFS University of Agriscs, Bangalore	12 Mar, 01 28 Nov – 7 Dec, 00	Dr. (Mrs.) S. Jana, Reader Mrs. P. Bandapadhyay, Lec

Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration	Name of Faculty Members / Scientists/ Officers with designation.
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Training programme on 'Recent advances in Marine Bio-technology'.	CIFA, Bhubaneswar	7–27 Aug, 00	Dr. R. K. Trivedi, Reader
Training programme on 'Ecology, Fisheries & fish stock assesment in contest of Indian River,	CICFRI, Barrackpur	14 July – 12 Aug' 99	Dr. B. K. Das, Sr. Lec Mr. S. K. Raut. Lec
Winter School on 'Computer application in Fisheries,.	CIFE, Mumbai	16 Nov – 6 Dec'	Dr. B. K. Das Sr. Lec
Training programme on 'Fish Yield management in open water based on Ecological management,.	CICFRI, Barrackpur	5 – 14 May ' 00	Mr. S. K. Rant. Lec
Training programe on 'Bioinformatics & statistics in Aquaculture Research.	CIFA,	2 – 5 Feb ' 99	Dr. B. K. Das, Sr. Lec