

# **WEST BENGAL UNIVERSITY OF ANIMAL AND FISHERY SCIENCES**

## **ANNUAL REPORT** **(2010-2012)**



**37 & 68, Kshudiram Bose Sarani  
Kolkata – 700 037  
West Bengal  
Website : <http://wbuafscl.ac.in>**



*Edited, Published and Cover Pages Designed by:*

**Prof. S. Biswas**

Director of Research, Extension & Farms  
and

Controller of Examinations

West Bengal University of Animal and Fishery Sciences  
37 & 68, Kshudiram Bose Sarani, Kolkata, West Bengal  
India, Pin Code – 700 037

Phone No. : 033 2556 3396

Mobile : 09433374099

e-mail : [lptsubhasish@yahoo.co.in](mailto:lptsubhasish@yahoo.co.in)

*Report compiled and pages designed by :*

**Dr. Sourav Chandra**

Assistant Director (Extension)

Directorate of Research, Extension & Farms

West Bengal University of Animal and Fishery Sciences

37 & 68, Kshudiram Bose Sarani, Kolkata, West Bengal  
India, Pin Code – 700 037

Phone No. : 033 2556 3396

Mobile : 9433330888

e-mail : [drsouravchandra@yahoo.com](mailto:drsouravchandra@yahoo.com)  
[drsouravchandra@gmail.com](mailto:drsouravchandra@gmail.com)

*Printed by :*

**Gouri Printing Works**

Kolkata, Pin Code- 700 117

Phone : 9331209655

## FOREWORD

**I**t gives me immense pleasure to present the Annual Report of the West Bengal University of Animal & Fishery Sciences which highlights the principal and important activities of the varsity and various achievements made during the period from 2010-2011 to 2011-2012.

Agriculture, the most important sector in the Indian economy, is presently facing multiple challenges and crisis. The share of agriculture in the national GDP has been decreasing over a period of years. Despite the crisis situation people depending on agriculture continues to be high an estimated two-thirds of the population are depending on agriculture.



Animal Husbandry, Dairying and Fisheries sectors play an important role in the national economy and in the socio-economic development of the country. These sectors also to play a significant role in supplementing family incomes and generating gainful employment in the rural sector, particularly, among the landless labourers, small and marginal farmers and women, besides providing cheap nutritional food to millions of people. Livestock are the best insurance against the vagaries of nature like drought, famine and other natural calamities.

Today India's livestock sector is economically in a better position than agriculture itself. India's livestock wealth is still the largest in the world. It accounts for about 57.3 per cent of the world's buffalo population and 14.7 per cent of the cattle population.

Livestock production-wise also, India is an unopposed leader. In the year 2012-13, India is expected to produce over 133 million tones of milk. Milk production have increased from 102.6 million tones at the end of Tenth Plan (2006-07) to 127.9 million tones at the end of the Eleventh Plan (2011-12).

Poultry development in the country has shown steady progress over the years. Egg production was around 66.45 billion in 2011-12, and the poultry meat production is estimated to be about 2.47 million tones.

The growth of output from the livestock sector during Eleventh Plan was about 4.8 per cent per annum and from fisheries was about 3.6 per cent per annum.

It is now crystal clear that the livestock and fishery sectors play a pivotal role in sustainable agricultural production system for the small and marginal farmers and landless labourers of the country. The well-developed poultry and dairy farming are paving the way for women empowerment for poverty alleviation and rural upliftment. The West Bengal University of Animal & Fishery Sciences is recognized as one of the leading institutions in the eastern region of the country, shouldering the responsibilities of education, research and extension activities in veterinary, dairy and fishery sciences. Like many other Agricultural Universities in the country our University can play a crucial role for the uplift of the livelihood of farming communities of the State.

A large number of small and marginal farmers as well as landless labourers are engaged in backyard poultry keeping, goat, sheep and pig rearing. Besides these, they also maintain cattle and buffaloes in their houses. Mostly





the women folk are involved in these activities. The growing concern on the widening of gap between demand and supply of quality feeds like concentrates, and to certain extent green forages as the livestock production system in India are slowly but surely undergoing a transformation with greater emphasis on propagating dairy animals with higher production potential. Focused strategies and concerted efforts are needed to face this challenge. Modification and fortification of conventional feeds should continue for improved nutrition, better digestibility and voluntary feed intake, which in turn, would result in better health, enhanced productivity and reproductive efficiency.

In livestock, there is an urgent need to reorient research and assess the genetic potential of indigenous breeds. Intensive research work needs to be undertaken for genetic identification of traits of excellence in Indian breeds, such as Black Bengal, goat, Garole sheep, ghongroo pig, etc., and identify the functional genomics associated with their traits of excellence. Our rural economy greatly depends upon these activities. West Bengal is famous for its Black Bengal goat, Garole sheep and also for our indigenous fowl and duck population. Scientists of our university have established the importance of Bonapala sheep and ghongroo pigs. West Bengal possess many kinds of big and small water bodies. A total farming system of integrating crop cultivation with horticulture, livestock and fish farming can transform the economic scenario of the State. Motto of our University is to create knowledgeable man power by imparting modern education and to undertake research. University is regularly imparting trainings on the relevant areas for upgradation of knowledge of the farming communities. The teachers and the scientists of the University are engaged in research work for conservation of germ plasm of vulnerable livestock varieties of West Bengal.

Three Krishi Vigyan Kendras of the University presently run at Ramsahi, Dist. Jalpaiguri, Digha, Dist. Murshidabad and Ashokenagar, Dist. North 24-Parganas. The process of dissemination of knowledge and techniques has been significantly undertaken by those Krishi Vigyan Kendras. The Directorate of Research, Extension & Farms has been conducting various training programmes on livestock, poultry and fishery aspects for the State Govt. officials and also for the farmers.

The implications of climate change on agriculture including animal husbandry and vice versa need to be studied and dedicated research programmes should be initiated to combat global warming. The changing climate has become an important research subject in agriculture and allied sectors today, and we look forward for a concerted action for meaningful interventions to minimize the impending impact of the global warming phenomenon. A major research thrust is warranted in areas of various biotic and abiotic stresses for improvement in production, productivity, and quality of produce of our agrihorticulture, fishery and livestock assets.

Quantity of teaching and research activities have received due importance during these years. Our University could never attain the success it has achieved without the active support and patronage of the Government of West Bengal, I.C.A.R. and other agencies.

I appreciate the efforts made by the editorial and publication board in bringing out the Annual Report in precise and attractive form. I would like to thank all my colleagues in West Bengal University of Animal & Fishery Sciences for their incredible work and cooperation. I shall look forward for suggestions and comments on the information contained in this publication, which would prove to be very much valuable for future activities.

(Prof. C. S. Chakrabarti)

Vice Chancellor

## PROLOGUE

**T**he present Annual Report for the years of 2010-11 and 2011-12 compiled with the salient achievements of various activities undertaken by the University in fulfillment of its mission concerning the teaching, research and extension education in Veterinary & Animal Sciences, Fishery Sciences and Dairy Technology.

The compilation and publication of Annual Report is a collective effort of all the sections of the University. It was not possible to bring out this Annual Report without the cooperation of all the teachers, scientists, officers and other employees of the University, for which I am highly delighted.



I express my deep sense of gratitude to the Hon'ble Vice Chancellor, Prof. C. S. Chakrabarti for his valuable guidance in publication of this Annual Report.

The entire efforts put in for compilation and editing by the members of the Annual Report Committee, especially Prof. S. Biswas, Director of Research, Extension & Farms; Dr. S. Chandra, Deputy Registrar and Asstt. Director of Extension (Actg.) with Mrs. A. Biswas, Computer Programmer are highly commendable.

I place on record my appreciation for all the staff of the University for giving the final shape of present Annual Report.

I wish that the University would blossom further to achieve greater height of excellence in academic, research and extension activities.



**(Prof. Purnendu Biswas)**

Registrar



## EDITOR'S COLUMN



Since its inception in the year 1995, West Bengal University of Animal & Fishery Sciences is spearheading towards development in the state of West Bengal in the field of animal science. This is being accomplished through researches, education and extension activities undertaken by the University through its three academic and research campuses and three Krishi Vignyan Kendras. Besides, budding and disseminating animal science technologies, this University is also developing proficient human assets to take the edge off the present and future tribulations relating to animal science for the state of West Bengal in particular and for the whole of the country in general.

Our country is facing quite a few challenges and the most taxing one is to exchange blows aligned with malnutrition and dearth of protein to the people of the nation. Owing to the deteriorating and depleted natural resources and changing agro-climatic situations, biotic and abiotic elements are diminishing and the crisis is getting more and more assorted and stiffer. These emerging issues are to be addressed to get hold of the goal of reaching self-sufficiency in food production. With the promulgation of the food safety and food security acts, the role of ours becomes more pertinent and formidable and the total aspects should be taken care of along with energy-balanced and bio-safety growth.

The IPR trade regulations- technology acquisition and transfer, declined fondness to the farm activities by the new generations, reduction in farm size, changes in dietary preferences, all these made the total set-up more knotty, more exigent and thus very much difficult for their redressal unless planners could chalk-out the road map considering the problems at grass route level.

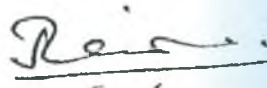
With this in mind, our nation is at the way to put together Vision 2050 in a war-footing approach to add in various facets into the national 12th five year plan.

Our University, at the age of 18 is playing a brilliant role in the field of fundamental and applied research in both animal and fishery science sectors to facilitate the problems as a supporting force at the National front.

The Krishi Vignyan Kendras, mouth piece of our activities, are augmenting the different sectors of agriculture, animal husbandry and fishery sciences and are engaged in different extension programme and also in solving the problems of the farmers at their door step through frontline demonstration methods. Thus, the farmers are gaining confidence for achieving better productivity which finally add to the national growth in terms of GDP to alley the hunger of thousand masses of our country.

This annual report of our University is providing the latest information during the period of 2010-12 and will be useful for the University fraternity to get abreast of their fellows activity to make them encouraged to take up enhanced activities in future course of time by them also.

I appreciate and acknowledge the endeavour of the officers and staff members of DREF of the University for bringing out this instant publication. The help rendered by the Principal Investigators of different projects and teachers of are gratefully acknowledged.



(Prof. Subhasish Biswas)

Director of Research, Extension & Farms  
& Editor

## ACKNOWLEDGEMENTS

I convey my deepest sense of gratitude to Prof. C. S. Chakrabarti, Honourable Vice Chancellor of the University for his Valuable advice and constant inspiration for the publication of present Annual Report for the period of 2010-11 and also 2011-12.

I gratefully acknowledge the active support rendered by Prof. S. Biswas, Director of Research, Extension and Farms and Editor of this Annual Report for his exuberant support in preparation of the Report.

Sincere thanks also to acknowledge more than one can help received from Prof. P. Biswas, Registrar of the University. It is my pleasure to record the gratitude in favour of Sri S. Chattopadhyay, Finance Officer; Prof. T. K. Mondal, Dean, Faculty of Veterinary & Animal Sciences; Prof. M. K. Sanyal, Dean of Dairy Technology Faculty; Prof. K. C. Dora, Dean of Fishery Sciences Faculty and other Faculty members for their cooperation in preparing this Annual Report.

The help received from Mrs. Aparajita Biswas, Computer Programmer and all other Officers and staff of Directorate of Research, Extension and Farms and also from Office of the Registrar is certainly to recognize with glad. I record my sincere thanks to all the employees of N. 24 Parganas, Murshidabad and Jalpaiguri KVK under this University for their cooperation in publishing this Annual Report.

I am also especially grateful to all the members of the Editorial and Publication Board of this Annual Report for sharing the shoulder in bringing out the most desired reporting about our reputed University.

I hope this Report will be meaningful, which has highlighted the events and activities of the University in a fascinating manner. Presto publication and printing might elicit some unwilling errors, which are regretfully admitted to pardon. Comments and suggestions are cordially invited to improve the quality of report publication in future.




(SOURAV CHANDRA)

Deputy Registrar and Assistant Director (Actg.)  
&  
Associate Editor







## CONTENTS

Topic	Page No.
<b>EXECUTIVE SUMMARY</b>	13
<b>A. ADMINISTRATION</b>	
A.1. Mandate	16
A.2. Authoritative structure	16
A.3. Organogram of WBUAFS	17
A.3. 1. Teaching Departments	18
A.4. Statutory Officers in the University	18
A.5. Different statutory bodies	19
A.5. 1. Executive Council (EC)	19
A.5. 2. Faculty councils	20
A.5. 3. Board of Studies	21
A.5. 4. Finance Committee	21
A.5. 5. Academic Council	21
A.5. 6. Research & Extension Education council	22
A.5. 7. Board of Examinations	22
A.6. Organization of EC meetings	23
A.7. Staff position	23
<b>B. ACADEMIC</b>	
B.1. Academic Programmes (Faculty wise)	26
B.2. Admission	26
B.2. 1. Admission Schedule	26
B.2. 2. Admission procedure for UG studies	26
B.2. 3. Admission procedure for Masters' degree studies	27
B.2. 4. Admission procedure for Doctoral studies	27
B.2. 5. Intake of Students	27
B.3. Out-turn of students	29
B.4. Academic awards for the students	30
B.5. Scholarships	31
B.6. Convocation	31
B. 6. 1. Details of the Seventh Convocation	31
B.7. Employment of the students	33
B.7. 1. Students' employment in F/VAS	33
B.7. 2. Students' employment in F/DT	33
B.7. 3. Students' employment in F/Fishery Sc.	34
B.8. Placement Cell	34
<b>C. RESEARCH</b>	
C.1. Rationale of Research Activities	35



C.2.	Projects at a glance	35
C.3.	Research Collaboration	35
C.4.	Type of on going projects & funding agencies	36
C.5.	Faculty wise distribution of research projects	36
C.6.	Brief listing of on-going research projects	37
C.6. 1.	On-going projects in F/VAS	37
C.6. 2.	On-going projects in F/ DT	39
C.6. 3.	On-going projects in F/ Fishery Sc.	39
C.6. 4.	On-going projects in DREF	40
C.7.	Salient achievements of on-going projects	40
C.7. 1.	Highlights of the projects in F/VAS	40
C.7. 2.	Highlights of the projects in F/ DT	54
C.7. 3.	Highlights of the projects in F/ Fishery Sc.	55
C.7. 4.	Highlights of the projects in DREF	57
C.8.	Remarkable technologies generated / refined	58
C.8. 1.	Technology generation in F/VAS	59
C.8. 2.	Technology generation in F/ DT	59
<b>D.</b>	<b>TRANSFERABLE TECHNOLOGIES</b>	60
<b>E.</b>	<b>EXTENSION ACTIVITIES</b>	
E.1.	Extension education	65
E.2.	Training programmes organized under DREF	66
E.3.	Consultancy Cell & Advisory Services	67
E.4.	Documentary films produced	67
E.5.	Participation in mela /fair / exhibition	68
E.6.	Organization of animal / fish health camps	68
E.7.	Women empowerment	68
E.8.	Publications	68
E.8. 1.	Brief about publication of academic, scientific & extension literatures	69
E.9.	Activities of Krishi Vigyan Kendras (KVKs)	69
E.9. 1.	Activities of Krishi Vigyan Kendra, Jalpaiguri	69
E.9. 2.	Activities of Krishi Vigyan Kendra, North 24 Parganas	80
E.9. 3.	Activities of Krishi Vigyan Kendra, Murshidabad	84
<b>F.</b>	<b>DETAILS OF PUBLICATIONS OF BOOKS, LEAFLETS, MANUALS ETC.</b>	
F.1.	Publications of Faculty of Veterinary and Animal Sciences	93
F.2.	Publications of Faculty of Fishery Sciences	97
F.3.	Publications of Faculty of Dairy Technology	98
F.4.	Publications of Directorate of Research, Extension & Farms	98
<b>G.</b>	<b>PUBLICATION ON RESEARCH FINDINGS</b>	
G.1.	Research publications of Faculty of Veterinary and Animal Sciences	99
G.2.	Research publications of Faculty of Fishery Sciences	123



G.3.	Research publications of Faculty of Dairy Technology	126
G.4.	Research publications of Directorate of Research, Extension & Farms	129
<b>II.</b>	<b>HUMAN RESOURCE DEVELOPMENT</b>	
H.1.	Participation of teachers, scientists & officers in HRD programmes	130
H.1. A.	Participation of departments from F/VAS	130
H.1. B.	Participation of departments from F/ Fishery Sc.	143
H.1. C.	Participation of departments from F/DT	145
H.1. D.	Participation from DREF	146
H.2.	Abroad visit of Scientists	147
<b>I.</b>	<b>HONOURS/AWARDS/FELLOWSHIP ETC. OF TEACHERS/SCIENTISTS/ OFFICERS OF THE UNIVERSITY</b>	149
<b>J.</b>	<b>IMPORTANT OCCASIONS ATTENDED BY THE HON'BLE VICE CHANCELLOR</b>	154
<b>K.</b>	<b>CENTRAL LIBRARY &amp; INFORMATION NETWORK SERVICES</b>	156
K.1.	Organizational structure of the CLINS	157
K.2.	Library holdings	157
K.3.	Services available	157
K.4.	Capacity building	158
K.5.	Library Automation	158
K.6.	Future Plannin	158
<b>L.</b>	<b>CENTRAL INSTRUMENTATION FACILITIES</b>	159
<b>M.</b>	<b>FINANCIAL</b>	
M.1.	Funds received	160
M.2.	Resource generation	160
<b>N.</b>	<b>HIGHLIGHTS OF REMARKABLE ACTIVITIES/EVENTS</b>	
N.1.	Distinguished visitors in the University	161
N.2.	The Seventh convocation	162
N.3.	The most valuable events/achievements	163
N.3. 1.	Establishment of Distance Education study centre	163
N.3. 2.	Organization of summer training on Immuno-Biochemical Techniques	163
N.3. 3.	Activities of National Service Scheme (NSS)	163
N.3. 4.	Signing of MOU With NMPPB	164
N.4.	Achievements of the teachers	164
N.5.	Achievements of the students	167
N.6.	Organization of National conference, symposium, congress, seminar etc.	167
N.7.	New construction work at different campuses in the University	168
<b>O.</b>	<b>OUR MISSION</b>	170
<b>P.</b>	<b>OUR CONTACT</b>	171
<b>Q.</b>	<b>EDITORIAL BOARD</b>	172
<b>R.</b>	<b>PUBLICATION BOARD</b>	172





## EXECUTIVE SUMMARY

The livestock and fisheries sectors are developing at a fast pace throughout India as the pressure on land is massive in all of its states. During, 2010-2012, the livestock and fisheries sectors contributed approximately 5.1% of the total Gross Domestic Product (GDP) and about 28% value of the output from agriculture, animal husbandry and allied ventures. Livestock production has been growing faster than any agricultural sub-sector and it is foreseen by 2020, the livestock will account for more than half of total global agricultural output in economic terms. To achieve a growth rate of 4% in the agriculture sector as envisaged in the XI plan, the growth in livestock and other allied sectors becomes much essential. Different types of technological interventions were introduced in these sectors in the country to attain this target. This paved away the path for significant improvement in productivity and production and also per capita availability of livestock products.

The State of West Bengal has the potential to enhance the livestock productivity with accelerated application of innovative technologies. The state is has produced 4.7 million tones of milk during 2011-12 besides having 63 million poultry, 18.9 million goats and 1.5 million pigs. West Bengal has emerged as the highest fish producing (16.34 lakh tones) state in the country including the production of 14.36 lakh tones inland fishes. Besides this, the total fish seed production became 13453 million fries during 2010-11, which is very encouraging. As most of the farmers in the state are small and marginal in nature, it is the livestock and fish, which could surely help in the livelihood improvement of these farming population. The efforts of Animal Husbandry and Fisheries are well known by their contribution to the general economy of West Bengal in terms of production. Growth in human population, increase in urbanization, rising domestic incomes and changing lifestyles have led to increased demand for products of animal origin. The West Bengal University of Animal and Fishery Sciences has already set up the goal in this direction and doing its best through its educational programmes and research activities. These package of practices developed in laboratories are then disseminated to rural farming community.

The West Bengal University of Animal and Fishery Sciences (WBUAFS), the second University of its kind in the country started its journey with a legacy of Century old Bengal Veterinary College on 2nd January 1995 with an objective to serve the State as well as the nation as a whole through imparting quality Education, accomplishing basic and need-based Research and disseminating proven technologies to the rural masses through its Extension wing. The highlights of various activities of the University during the period 2010-2012 are depicted below :

### **Institutional :**

The 7th convocation was organized to confer degrees to 150 Under-graduate, 106 Post-graduate and 14 Ph.D. students under the three Faculties of the University. The dignitaries of Indian Council of Agricultural Research (ICAR), Ministry of Agriculture, Govt. of India and Veterinary Council of India (VCI) have visited



the University to assess the academic activities of Under-graduate course adopted in the University. The University has conducted five National Conferences / Seminars / Symposiums during the reporting period. The Central Library with Information Network services is working in full fledge to fulfill the objectives of the University

### **Academic :**

Keeping in view of the globalization in future challenges and relevance to changing needs and aspirations in the field of animal sciences and fishery, the University has fashioned its academic system in very dynamic way. The educational activities in the University are regularly put under evaluation and accordingly modification of course curricula and teaching methodologies are made.

The University offers undergraduate studies in Veterinary and Animal Sciences, Dairy Technology and Fishery Sciences under its three faculties. All the faculties are facilitated with Masters degree courses as well as the doctorate studies. Since 2009, the admission for the undergraduate course in faculty of Veterinary and Animal Sciences is undertaken through a separate examination by West Bengal Joint Entrance Board for B.V.Sc. & A.H. students. The same method is also followed in the Dairy Technology faculty through a combined Joint Entrance Examination for engineering students in the State. In undergraduate and postgraduate studies 15% students are selected by the VCI / ICAR through All India Entrance Examinations. Besides keeping such 15% quota, in the Fishery faculty, the admission to undergraduate course is carried out through the merit list prepared on the basis of marks obtained in the 10 + 2 Examinations. The admission of students for three faculties during 2010-2011 was 220. In this period, a total of 126 students comprising 73 in Under-graduate, 49 in Post-graduate and 4 in Ph.D. programmes have successfully completed their courses. Similarly, the admission of students for three faculties during 2011-2012 was 210. During this period, a total of 210 students comprising 94 in Under-graduate, 90 in Post-graduate and 26 in Ph.D. programmes have successfully completed their courses. Best students were awarded with different kinds of medal namely, Mira Mallick Gold Medal, Dr. S.N. Roy Gold medal, Prof. D.B. Mukherjee Gold medal, Dr. P. Bhattacharya Gold medal and Dr. D.K. Biswas Gold medal.

### **Research :**

Considering the ever-changing scenario in the agricultural, animal husbandry and fishery sectors in the nation, the University is taking up newer research programmes for the greater interest of the farming community. Since inception in 1995, the University has completed 71 research projects with fund allocation of **Rs. 3436.36** lakhs, received from various funding agencies. The University has already evolved 74 technologies, which would obviously help to enhance the income and livelihood security of the farming community. Currently there exists 38 numbers of on-going research projects with fund allocation of **Rs. 2856.17** lakhs. In addition, there exists Collaborative research projects with other Institutions. Further, this University has been implementing 2 (two) National Agricultural Innovative Projects (NAIP) under component 3 relating to livelihood security as the Supporting Institute in collaboration with Bidhan Chandra Krishi Viswavidyalaya (BCKV), ICAR Research complex for NEH Region (Tripura) and IVRI (UP). 2 (two) projects are successfully running under Niche Area of Excellence.

### **Extension :**

One of the basic features of the University is to render services to farmers and rural community for implementation of their own farming units. The University has been continuously undertaking different sorts of outreach activities throughout the State. In its regular course of action, the University has been organizing various types of need based training programmes, mass contact camps, farm and home visits, workshops,





seminars, kisan mela, farm produce exhibitions, consultancy and advisory services, on-farm trial, frontline demonstrations, field days, disease investigation with health camps and other extension activities benefiting 33735 farmers during the period under report. The University also offers training for Master trainers' of State level Extension Officers. Resource Persons of SHGs, Fisher folk of Sundarban and also organizes periodic National level training programmes for Extension Officers of different States. Six documentary films were produced to disseminate knowledge on latest technologies evolved by the University in livestock and fishery sectors.

During the period, nearly 280 research papers were published in different national and international journals. Apart from this, University has 150 number of publications of different books, monographs, manuals, compendiums and activity highlights.

### **Krishi Vigyan Kendras :**

The University has 3 (three) Krishi Vigyan Kendras (KVKs) in Jalpaiguri, North 24 Parganas and Murshidabad districts. All the KVKs have been functioning based on the mandates formulated by the Indian Council of Agricultural Research (ICAR) and the University through mutual understanding. Three centrally sponsored research projects have been implemented at Jalpaiguri KVK. In addition to these, six projects sponsored by Central and State Govt. Departments have been implemented at the Krishi Vigyan Kendras.

---



**A****ADMINISTRATION****A.1. MANDATE OF THE UNIVERSITY**

**The mandates of West Bengal University of Animal and Fishery Sciences are as follows :**

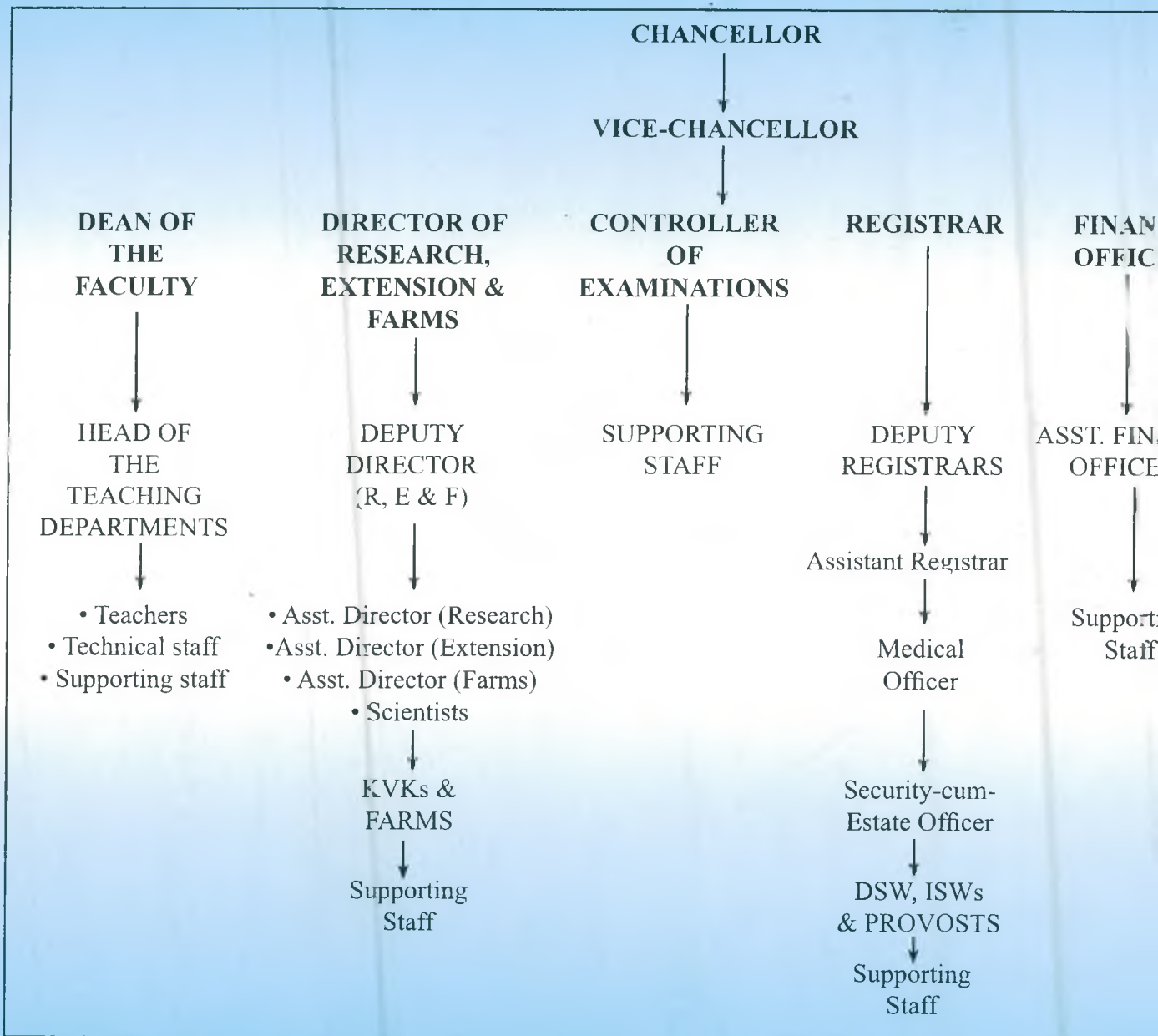
- A. To impart education in the branches of Veterinary and Animal Sciences, Fishery Sciences, Dairy Technology and allied sciences.
- B. To conduct basic and applied research in the field of Veterinary and Animal Sciences, Fishery Sciences, Dairy Technology for advancement of knowledge and enhancement of productivity to alleviate poverty and economic upliftment of the society.
- C. To undertake the development of such sciences or technologies and the extension thereof to the rural people in co-operation with the concerned Departments of Government of West Bengal.

**A.2. AUTHORITATIVE STRUCTURE**

The authoritative structure under the organizational set-up of the West Bengal University of animal and Fishery Sciences follows the state Agricultural University (SAU) structure. The University operates through following authorities, who are responsible for designing policy matters and making decisions in the field of Academic, Research, Extension, Farm activities and Administration :

- ❖ Executive Council
- ❖ Faculty Council
- ❖ Academic Council
- ❖ Research and Extension Council
- ❖ Finance Committee
- ❖ Board of Examinations
- ❖ Board of Studies

### A. 3. ORGANOGRAM OF WBUAFS





<b>Prof. M. K. Sanyal,</b> Dean, F/O Dairy Technology WBUAFS	Member
<b>Prof. S. Biswas,</b> Professor, Dept. of Livestock Products Technology, (Teacher's Representative, F/O Veterinary and Animal Sciences, WBUAFS)	Elected Member
<b>Prof. S. P. Sarkar,</b> Professor, Dept. of Dairy Chemistry, (Teacher's Representative, F/O Dairy Technology, WBUAFS)	-do-
<b>Prof. S. S. Dana,</b> Professor, Dept. of Fishery Extension, (Teacher's Representative, F/O Fishery Sciences, WBUAFS)	-do-
<b>Smt. Mala Saha,</b> (M.L.A. Representative, nominated by West Bengal Legislative Assembly)	Nominated Member
<b>Sri S. V. Ingla,</b> Representative from VCI	-do-
<b>Dr. A. K. Sharma</b> Director, Central Inland Fisheries Research Institute I.C.A.R. (Representative of I.C.A.R., New Delhi)	-do-
<b>Prof. P. Biswas,</b> Registrar, WBUAFS	Non-Member Secretary

#### **A.5. 2. FACULTY COUNCILS**

Vice-Chancellor	<i>Chairman</i>
Registrar	<i>Member</i>
Director of Research, Extension & Farms	-do-
Librarian	-do-
Controller of Examinations	Invitee Member
Dean of the respective Faculty	Member
All Heads of the Dept. of respective Faculty	-do-





Professor from respective Faculty	Elected Member
Reader from respective Faculty	-do-
Lecturer from respective Faculty	-do-
U.G. student from respective Faculty	-do-
P.G. Student from respective Faculty	-do-
Secretary, Faculty Council	<i>Ex officio Secretary</i>

### A.5. 3. BOARD OF STUDIES

Head of the Department	<i>Chairman &amp; Convener</i>
All the whole time teachers of the Department	<i>Members</i>

### A.5. 4. FINANCE COMMITTEE

Vice-Chancellor	<i>Ex-officio Chairman</i>
Sri Biplab Majumdar, MLA Representative	<i>Nominated Member of EC</i>
Secretary, Finance Dept., Govt. of West Bengal or his representative	<i>Member</i>
Secretary, Animal Resource Development Dept., Govt. of West Bengal or his representative	<i>Member</i>
Secretary, Fisheries Dept., Govt. of West Bengal or his representative	<i>Member</i>
Director of Research, Extension & Farms	<i>Member</i>
Secretary, Faculty Council	<i>Member Secretary</i>

### A.5. 5. ACADEMIC COUNCIL

Vice-Chancellor	<i>Chairman</i>
Director of Research, Extension & Farms	<i>Member</i>
Deans of Faculties	<i>Member</i>
Registrar	<i>Non Member Secretary</i>
Controller of Examinations	<i>Member</i>
Librarian	<i>Member</i>
All Heads of the Departments of all the Faculties	<i>Member</i>
One Lecturer, one Reader and one Professor from each Faculty	<i>Member</i>

One U.G. student from each Faculty and one P.G. Student from the University elected by the regular students in a manner as shall be prescribed

*Member*

Two eminent academicians from the field of Veterinary/Dairy/Fishery Sciences nominated by the Vice-Chancellor

*Member*

#### **A.5. 6. RESEARCH AND EXTENSION EDUCATION COUNCIL**

- |  |                  |
|--|------------------|
| 1. Vice-Chancellor   | Chairman         |
| 2. Director of Research, Extension & Farms   | Member Secretary |
| 3. Director of Veterinary Services and Animal Husbandry, Govt. of West Bengal  | Member           |
| 4. Director of Fisheries, Govt. of West Bengal   | Member           |
| 5. Deans of Faculties  | Member           |
| 6. Head of all Research Stations and Project Coordinators of State/ICAR/other agencies, Research schemes   | Member           |
| 7. Three Scientists of eminence to be nominated by the Vice-Chancellor for their specialized knowledge, one for each faculty for a period of two years | Member           |
| 8. Three progressive farmers associated with Veterinary, Animal Husbandry/Fisheries/ Dairy Technology practices to be nominated by the Vice-Chancellor | Member           |

#### **A.5. 7. BOARD OF EXAMINATIONS**

1. One of the Deans from the three Faculties – Chairman (By rotation)
2. Registrar – Member
3. Deans of Faculties – Member
4. Controller of Examinations – Member Secretary



#### A.6. ORGANIZATION OF MEETINGS OF THE EXECUTIVE COUNCIL DURING 2010 - 2012

Sl. No. of the E.C. Meeting	Date of Meeting
56 <sup>th</sup>	29/09/2010
57 <sup>th</sup>	31/01/2011
57 <sup>th</sup> (Adjourned)	14/02/2011
58 <sup>th</sup>	31/10/2011
58 <sup>th</sup> (Adjourned)	25/11/2011
59 <sup>th</sup>	25/11/2011
60 <sup>th</sup>	24/04/2012
61 <sup>st</sup>	12/06/2012
62 <sup>nd</sup>	26/06/2012
63 <sup>rd</sup>	03/08/2012
64 <sup>th</sup>	17/10/2012

#### A.7. STAFF POSITION

Sl. No.	Category	Year and Number	
		2010-11	2011-12
I. OFFICERS			
1.	Vice Chancellor	01	01
2.	Registrar	01	01
3.	Dean of the Faculties	03	03
4.	Director of Research, Extension & Farms	01	01
5.	Finance Officer	01	01
6.	Controller of Examinations	01	01
II. TEACHERS			
1.	Lecturer/Assistant Professor	63 23 Vacant	76 10 Vacant
2.	Reader/Associate Professor	15 17 Vacant	15 17 Vacant
3.	Professor	8 19 Vacant	10 17 Vacant





III. OFFICERS (POSTS SANCTIONED BY THE STATE GOVERNMENT)			
Sl. No.	Category	Year and Number	
		2010-11	2011-12
1.	Secretary to the Faculty Council	01	01
2.	Deputy Registrar	02 01 Vacant	02 01 Vacant
3.	Deputy Director (Research)	02 02 Vacant	02 02 Vacant
4.	Librarian	01 01 Vacant	01 01 Vacant
5.	Deputy Librarian	01	01
6.	Assistant Librarian	01 01 Vacant	01 01 Vacant
7.	Assistant Finance Officer	02	02
8.	Assistant Registrar	01	01
9.	Assistant Director (Research)	01	01
10.	Assistant Director (Extension)	01	01
11.	Assistant Director (Farms)	01	01
12.	Scientist	02	02
13.	Farm Manager	01	01
14.	Computer Programmer	01	01
15.	Sports Officer	01 Vacant	01 Vacant
16.	Medical officer	01 Vacant	01 Vacant
17.	Security cum Estate Officer	01 Vacant	01 Vacant
18.	Law Officer	01 Vacant	01 Vacant



Sl. No.	Category	Year and Number			
		2010-11		2011-12	
IV. NON TEACHING (Adminilstrative, Technical & Supporting) EMPLOYEES					
		Sanctioned	Filled	Sanctioned	Filled
1.	Technical Assistant II	20	20	20	20
2.	Compunder	3	1	3	1
3.	Field Assistant	3	2	3	2
4.	Junior Animal Keeper	27	20	27	21
5.	Junior Assistant	63	50	63	50
6.	Junior Cyclostyle Operator	1	1	1	1
7.	Junior Stenographer	2	2	2	2
8.	Junior Storekeeper	5	4	5	4
9.	Laboratory Attendant	56	38	56	38
10.	Office Attendant	103	63	103	69
11.	Vistiman	1	1	1	1
12.	Sweeper	43	22	43	23
13.	Ambulance Attendant	2	2	2	2
14.	Cash Assistant	4	4	4	4
15.	Computer Operator	1	1	1	1
16.	Driver cum Mechanic	6	3	6	3
17.	Durwan	34	1	34	1
18.	Farash	6	6	6	6
19.	Fisherman	5	4	5	4
20.	Gymnasium Attendant	1	1	1	1

**B****ACADEMIC****B.1. ACADEMIC PROGRAMMES (FACULTY WISE)**

The West Bengal University of Animal and Fishery Sciences follows the syllabus framed by Veterinary Council of India (VCI) for the Faculty of Veterinary and Animal Sciences. Syllabus for the Faculty of Fishery Sciences is adopted from Indian Council of Agricultural Research (ICAR) and the syllabus for courses under Faculty of Dairy Technology is approved by AICTE, New Delhi.

Courses offered by the University in the three faculties are as follows :

***Faculty of Veterinary and Animal Sciences :***

- |                   |  |
|-------------------|--|
| i) B.V.Sc. & A.H. | 5 years Bachelor's degree course (60 capacity) |
| ii) M.V.Sc.       | 2 years Master's degree course ( 102 capacity) |
| iii) Ph. D.       | 3 years Doctoral degree course ( 48 capacity)  |

***Faculty of Dairy Technology :***

- |                      |  |
|----------------------|--|
| i) B.Tech. (DT)      | 4 years Bachelor's degree course (30 capacity) |
| ii) M. Tech. / M.Sc. | 2 years Master's degree course ( 24 capacity)  |
| iii) Ph. D.          | 3 years Doctoral degree course ( 12 capacity)  |

***Faculty of Fishery Sciences :***

- |                   |  |
|-------------------|--|
| i) B.F.Sc. & A.H. | 4 years Bachelor's degree course (32 capacity) |
| ii) M.F.Sc.       | 2 years Master's degree course                 |

**B.2. ADMISSION****B.2.1. ADMISSION SCHEDULE**

Admission to Undergraduate courses starts generally immediately before or soon after the publication of results of Higher Secondary Examination results conducted by the West Bengal Council of Higher Secondary Education.

**B.2.2. ADMISSION REQUIREMENTS / PROCEDURE FOR UNDERGRADUATE STUDIES**

Candidates seeking admission to the B.V.Sc. & A.H. course must qualify in the West Bengal Joint Entrance Examination conducted for entrance to the B.V.Sc. & A.H. course. The candidates qualified in the West Bengal





Joint Entrance examination conducted for entrance into the Engineering/Technology course are considered for studies on B. Tech. (D.T.) course. For B. F. Sc. course application forms are generally available from few branches of UCO Bank as notified in the local daily newspapers. After 15 days of last date of receipt of application forms merit list is generally published at Belgachia (Kolkata).

The Undergraduate candidates must secure minimum 50% marks altogether in Physics, Chemistry, Biology, English and Vernacular in Higher Secondary or equivalent (10+2) examinations. The candidatures of other Board/Council (10+2) level passed from Institutions in West Bengal are considered provided that the candidate is a domicile of West Bengal. The Scheduled caste / scheduled tribe candidates must secure 40% marks instead of 50% marks altogether in Physics, Chemistry, Biology, English and Vernacular in Higher Secondary or equivalent (10+2) examinations.

### B.2.3. ADMISSION REQUIREMENTS FOR MASTER'S DEGREE STUDIES

The candidates for Master's degree courses must have passed B.V.Sc.&A.H. / B.Sc. (D.T.)/ B. Tech. (D.T.)/ B. F. Sc. from a recognized University with 55% marks in aggregate (50% marks for SC/ST candidates) in traditional system or with a minimum 6.2 OGPA (6.0 for SC/ST candidates) in 10 point scale. Selection of candidates are carried out by University constituted Selection Committees for the purpose and admitted on the basis of merit and performance in the interview. The merit is decided on the basis of percentage of marks obtained in aggregate or OGPA in Bachelor's Degree Examinations as well as OGPA in subject concerned in which admission is sought. The relative weight-age on overall performance in Bachelor's Degree and in the subject concerned for Master's degree studies is given in the ratio of 2:1.

### B.2.4. ADMISSION REQUIREMENTS FOR DOCTORAL (PhD) STUDIES

The candidates for Doctorate of Philosophy (Ph.D.) must have passed two years Master's Degree in Veterinary and Animal Sciences, Dairy Science/Dairy Technology, Fishery Science securing 55% marks in aggregate or 2.75 OGPA in 4.0 scale or 6.75 in 10 point scale following a first or high second class in B. V. Sc. & A. H./ B. Tech. (D.T.) / B. F. Sc. from any recognized University or National Institute. Candidates seeking admission to PhD course in a subject shall have passed Master's Degree in the same subject and also have done sufficient courses in the proposed major field of specialization within the subject.

### B.2.5. INTAKE OF STUDENTS

#### Academic Year 2010-2011

Courses Offered	Level	No. of Seats	No. of Applications received	Final intake by location & sex wise			
				Rural		Urban	
				Male	Female	Male	Female
B.V.Sc. & AH	UG	60	47	15	2	33	7
M.V.Sc.	PG		64	12	3	38	11
Ph.D. in Vety. & Animal Sciences	PhD		23	5	1	14	2



Courses Offered	Level	No. of Seats	No. of Applications received	Final intake by location & sex wise			
				Rural		Urban	
				Male	Female	Male	Female
B.Tech. (DT)	UG	30	20	5	0	12	3
M.Tech. (DT)	PG		10	0	0	6	4
Ph.D. in Dairy Technology	PhD		1	0	0	1	0
B.F. Sc.	UG	32	27	3	4	12	8
M.F. Sc.	PG		16	3	0	10	3
Ph.D. in Fishery Sciences	PhD		3	0	0	2	1

Academic Year 2011-2012

Courses Offered	Level	No. of Seats	No. of Applications received	Final intake by location & sex wise			
				Rural		Urban	
				Male	Female	Male	Female
B.V.Sc. & AH	UG	60	42	4	0	25	3
M.V.Sc.	PG		56	8	4	32	12
Ph.D. in Vety. & Animal Sciences	PhD		21	3	2	11	5
B.Tech. (DT)	UG	30	30	5	1	22	2
M.Tech. (DT)	PG		9	0	0	3	6
Ph.D. in Dairy Technology	PhD		1	0	0	1	0
B.F. Sc.	UG	32	32	4	3	18	7
M.F. Sc.	PG		25	3	4	13	5
Ph.D. in Fishery Sciences	PhD		4	0	0	2	2



### B.3. OUT-TURN OF STUDENTS

#### Academic Year 2010-2011

Discipline	Level	Numbers of students passed out		Status of the passed out students			
		Total	Females	No. of students joined higher studies	No. of students joined employment	No. of students went abroad	Others
Veterinary & Animal Sciences	UG	28	6				
	PG	25	2				
	Ph. D	3	1				
Fishery Sciences	UG	13	4				
	PG	16	4				
	Ph. D	0	0				
Dairy Technology/ Sciences	UG	19	3				
	PG	2	0				
	Ph. D	0	0				

#### Academic Year 2011-2012

Discipline	Level	Numbers of students passed out		Status of the passed out students			
		Total	Females	No. of students joined higher studies	No. of students joined employment	No. of students went abroad	Others
Veterinary & Animal Sciences	UG	47	10				
	PG	35	5				
	Ph. D	2	0				
Fishery Sciences	UG	18	3				
	PG	18	9				
	Ph. D	0	0				
Dairy Technology/ Sciences	UG	25	7				
	PG	5	2				
	Ph. D	0	0				



#### B.4. ACADEMIC AWARDS FOR THE STUDENTS

Following recognitions are being awarded to the passed-out students of the three faculties as Gold Medals by the University :

- ❖ **Smt. Mira Mallik Gold Medal**  
(For securing Highest marks in B.V.Sc. & A.H.)
- ❖ **Prof. D.B. Mukherjee Gold Medal**  
(For securing Highest marks in Vety. Surgery & radiology in B.V.Sc. & A.H.)
- ❖ **First Batch (1953) B.V.Sc. Student Gold Medal**  
(For securing Highest marks in 5th & 6th Semester in B.V.Sc. & A.H.)
- ❖ **Dr. S.N. Roy Gold Medal**  
(For securing Highest marks in Livestock Farm Management in B.V.Sc. & A.H.)
- ❖ **Dr. B.N. Dey Memorial Endowment Gold Medal**  
(For securing Highest marks in Vety. Gynaecology & Obstetrics in B.V.Sc. & A.H.)
- ❖ **Dr. Subir Kr. Sinha Memorial Gold Medal**  
(For securing Highest marks in Vety. Medicine, Ethics & Jurisprudence in B.V.Sc. & A.H.)
- ❖ **Dr. D.K. Biswas Gold Medal**  
(For securing Highest marks in Poultry Production Management in B.V.Sc. & A.H.)
- ❖ **Dr. G.L. Sharma Endowment Gold Medal**  
(For securing Highest marks in Vety. Public Health in B.V.Sc. & A.H.)
- ❖ **Dr. B.N. Mukherjee Gold Medal**  
(For securing Highest marks in Vety. Epidemiology & Preventive Medicine in B.V.Sc. & A.H.)
- ❖ **Charu Chandra Koley Gold Medal**  
(For securing Highest marks in Animal Genetics & Breeding in B.V.Sc. & A.H.)
- ❖ **Dinesh Chandra De and Sova De Memorial Gold Medal**  
(For securing Highest marks in 5th Composite Annual Examination in B.V.Sc. & A.H.)
- ❖ **Dr. (Mrs.) Gita Biswas Gold Medal**  
(For securing Highest marks in Vety. Parasitology in B.V.Sc. & A.H.)
- ❖ **Dr. Animesh Kumar Chakraborty Gold Medal**  
(For securing Highest marks in Vety. Toxicology in B.V.Sc. & A.H.)



❖ **Prof. G.C. Banerjee Gold Medal**

(For securing Highest marks in Animal Nutrition in B.V.Sc. & A.H.)

❖ **Dr. P. Bhattacharya Gold Medal**

(For securing Highest OGPA in Animal Production & Management in M.V.Sc.)

❖ **Prof. Rabindra Kumar Ghosh Gold Medal**

(For securing Highest marks in Vety. Pharmacology & Toxicology in M.V.Sc.)

❖ **Prof. Sukumar De Gold Medal**

(For securing Highest marks in B.Tech. (D.T.))

❖ **Smt. Tirthamayee Ganguli Gold Medal**

(For securing First Position in M.Tech. (D.I.))

❖ **Smt. Lakshmi Das & Sri Kasi Nath Das Gold Medal**

(For securing Highest marks in B.F.Sc.)

❖ **Smt. Manju Biswas & Dr. K.P. Biswas Gold Medal**

(For securing Highest marks in Fishery Engineering in B.F.Sc.)

In the academic year of 2010-2011, 8 (eight) students were awarded with 17 Gold Medals and during the academic year of 2011-2012, 12 (twelve) passed-out students received 19 different Gold Medals offered by the University.

## B.5. SCHOLARSHIPS

Merit Scholarships are being granted to a few meritorious students for studies in Undergraduate courses as per approval and guidelines issued by the State Government.

## B.6. CONVOCATION

### B.6.1. DETAILS OF THE SEVENTH CONVOCATION

The glorious ceremony of Seventh Convocation of the University took place on 26th June 2012 at Mohit Mancha, Kolkata. His Excellency, the Governor of West Bengal and Chancellor of the University Hon'ble Sri Mayankote Kelath Narayanan inaugurated the convocation and presided over the ceremony. Lt. General (Dr.) Narayan Mohanty, the first Director General of Remount Veterinary Service and the recipient of Param Vishisht Seva Medal (PVSM), Ati Vishisht Seva Medal (AVSM), Vishisht Seva Medal (VSM) and President, Veterinary Council of India was the Chief Guest and he delivered the convocation address on the occasion. The seventh convocation of the University conferred the Degree of Doctor of Science (Honoris Causa) on Dr. S. Ayyappan, Secretary, Department of Agricultural Research & Education, Ministry of Agriculture, Govt.



of India and Director General, Indian Council of Agricultural Research, New Delhi and also on Prof. Bijoy Kumar Chakraborty, Ex-Director, National Dairy Development Board (Eastern Region).

Janab Nure Alam Chowdhury, Hon'ble Minister-in-charge, Deptt. of Animal Resource Development and Janab Abu Hena, Hon'ble Minister-in-charge, Deptt. of Fisheries, Aquaculture, Aquatic Resource & Fisheries Harbours, Food Processing Industries & Horticulture to the Govt. of West Bengal were present to grace the occasion.

Hon'ble Chancellor, in his speech, exhorted the degree recipients to contribute immensely towards realizing the dreams of shining India and prosperous West Bengal. Chief Guest expressed his buoyant views in studies under this University and thereby immense employment opportunities during coming days. Hon'ble MIC, ARD Deptt. and Hon'ble MIC, Fisheries Development Deptt., Govt. of West Bengal wished the out-turned students a bright future. Hon'ble Vice-Chancellor elaborated the importance of integrated farming in the State. All the dignitaries expressed their satisfaction about the performances of the University in the different fields.

A total of 14 students were awarded Ph.D degree, while 106 and 150 students received Master's and Bachelor's degree, respectively, in all the three faculties of the University.

Faculty wise following degrees were awarded to the students for the year 2010 & 2011 –

<i>Degree in the Faculties</i>	<i>No. of Students</i>
<u>Faculty of Veterinary &amp; Animal Sciences</u>	
<b>B.V.Sc. &amp; A.H.</b>	<b>75</b>
<b>M.V.Sc.</b>	<b>63</b>
<b>Ph.D.</b>	<b>14</b>
<u>Faculty of Fisheries Sciences</u>	
<b>B.F.Sc.</b>	<b>31</b>
<b>M.F.Sc.</b>	<b>34</b>
<b>Ph. D.</b>	<b>-</b>
<u>Faculty of Dairy Technology</u>	
<b>B.Tech. (D.T)</b>	<b>44</b>
<b>M.Tech. (D.T)/ M.Sc.</b>	<b>09</b>
<b>Ph.D.</b>	





Altogether 20 students were awarded with 37 different gold medals for their excellence in different disciplines of study under the three faculties of the University.

## B.7. EMPLOYMENT OF THE STUDENTS

University Officials as well as the Faculty members are always attached with the passed out students for their counseling for employment and placement in a job. The alumni also take care of the situation for those going in for employment. Students of this University are being absorbed in different developmental sectors in the State, Country and abroad as well.

The main industries/sectors absorbing the faculty-wise out-turns of the University are as follows :-

### B.7.1. Faculty of Veterinary & Animal Sciences :

- (i) State Govt. Department of Animal Resource Development,
- (ii) Broiler poultry producing Private Companies,
- (iii) Livestock and poultry biological, medicine producing Private companies,
- (iv) Animal feed producing Private Companies,
- (v) State Govt. Administrative services,
- (vi) Bank and P.O. etc.

### B.7.2. Faculty of Dairy Technology :

The students passed out from the Faculty get employment in National and Multi-national milk & dairy product producing, Govt., Semi Govt. and Private Companies like,

- |   |                                       |                            |
|---|---------------------------------------|----------------------------|
| (i) Glaxo Smithkline,                         | (viii) Amul,                          | (xiv) ITC (Food Division), |
| (ii) Nestle India Ltd.,                       | (ix) Hindustan Lever,                 | (xv) Almarai, Riyadh,      |
| (iii) Perfetti Van-Melle,                     | (x) Fonterra New Zealand Corporation, | (xvi) IBM,                 |
| (iv) Dynamix Dairy Industries Ltd.,           | (xi) NDDB,                            | (xvii) TCS,                |
| (v) Mother Dairy, Kolkata,                    | (xii) Sudha,                          | (xviii) WCMPF Ltd.,        |
| (vi) Metro Dairy, Kolkata,                    | (xiii) Verka                          | (xix) ITC Infotech,        |
| (vii) National Food Corporation Ltd., Jeddah, |                                       | (xx) Paras Foods, etc.     |

### **B.7.3. Faculty of Fishery Sciences :**

The passed out students of the faculty were placed at different Government, Non-Government organizations, Semi-Government organizations, Private Institutes as well as as follows :

- (i) State Govt. Department of Fishery and other Administrative services,
- (ii) Bank & PO,
- (iii) Central Govt. Research Services,
- (iv) Teaching in different SAUs,
- (v) Animal and fish feed producing Private Companies,
- (vi) KVKs etc.

### **B. 8. PLACEMENT CELL**

The University has established the Placement Cell during February, 2006. Since then, the cell is working towards the placement of the passed out students of all the Faculties of the University. Majority of the passed out students get employment through different Competitive examinations in the Govt., Semi-Govt. or Private sectors.



## C

## RESEARCH

### C.1. RATIONALE OF RESEARCH ACTIVITIES

Science and Technology are the pathfinders for a change in livestock, poultry, fishery and dairy development to obtain the desired output. Research should be tailored according to the need of development in technologies, which can help to add economic value to the time and labour of the farmers. Researches on Veterinary, Fishery and Dairy sector should be stepped up under the umbrella of National Agricultural Research System (NARS), which comprises ICAR Institutes and SAUs. In the wake of globalization and WTO, the West Bengal University of Animal and Fishery Sciences has set up its research strategies by identifying priority research areas emphasizing eco-friendly and small farming based technologies.

### C.2. PROJECTS AT A GLANCE

	<i>No. of Projects</i>	<i>Funds received</i>
1. Completed ,	22	Rs. 3436.36 lakhs
2. On-going projects	38	Rs 2856.17 lakhs
3. Submitted projects	17	Rs. 3601.13 lakhs

### C.3. RESEARCH COLLABORATION

During 2010 - 2012, a total of 38 externally funded projects were in operation under the faculties of Veterinary and Animal Sciences, Dairy Science and Technologies, Fishery Sciences and also the Directorate of Research, Extension and Farms wing of the University. The scientific competence and excellence of previous performance in completing various research projects led to fiscal and physical assistance from different National and International agencies. The Directorate of Research, Extension and Farms of the University monitors the successful undertaking and implementation of different sorts of research projects. Teachers and scientists are given flexible opportunities to invite and propose for conducting research projects in the University. The University maintains close linkage with various organizations/agencies to exchange information and acquired current and advanced knowledge in Veterinary, animal sciences, dairy and fishery sectors for multiway benefits.

The University is conducting various research projects/schemes sponsored by different external-agencies as well as by the State Govt. departments, which encompasses Public, Private and their partnerships.



**C.4. TYPE OF ON-GOING PROJECTS AND FUNDING AGENCIES**

<i>Sl No</i>	<i>Type of Project</i>	<i>Funding Agency</i>	<i>Numbers</i>
1	All India Coordinated Research Project (AICRP)	ICAR	3
2	Niche Area of ExcellenceICAR	2	
3	All India Network Project (AINP)	ICAR	4
4	National Agricultural Innovation Project (NAIP)	ICAR	2
5	Ministry of Agriculture, Govt. of India	Ministry of Agril., GOI	3
6	Department of Biotechnology (DBT)	Govt. of India	6
7	Department of Science and Technology (DST)	Govt. of India	1
8	National Initiative on Climate Resilient Agriculture (NICRA)	ICAR	1
9	Project Directorate on Poultry, Hyderabad	ICAR	1
10	National Bureau of Animal Genetic Resources (NBAGR)	ICAR	1
11	Outreach programme	ICAR	2
12	ICAR project	ICAR	2
13	Foreign Funded	Australia, UK, Germany, Belgium.	5
14	Industry	Private	5
<b>Total</b>			<b>38</b>

**C.5. FACULTY-WISE DISTRIBUTION OF RESEARCH PROJECTS**

<i>Sl.No.</i>	<i>Faculty</i>	<i>No. of projects</i>	<i>Fund Allocation</i>
1	Veterinary and Animal Sciences	30	1547.18 lakhs
2	Fishery Sciences	5	1132.12 lakhs
3	Dairy Technology	1	149.16 lakhs
4	DREF	2	27.71 lakhs
<b>Total</b>		<b>38</b>	<b>2856.17 lakhs</b>



## C.6. BRIEF LISTING OF ON-GOING PROJECTS

### C.6.1. FACULTY OF VETERINARY AND ANIMAL SCIENCES

Sl. No.	Title of the Project	Funding Agency	Principal Investigator and Department	Fund Sanctioned	Year of initiation
1	Niche Area of Excellence on Animal Disease Registry and Tissue Bank	ICAR	Prof. J. D. Ghosh Vety. Parasitology	257.15 lakhs	2012
2	Sustainable farming system to enhance and ensure livelihood security of poor in Purulia, Bankura and West Midnapur district	NAIP, Component -III, ICAR	Prof. P. Biswas, Animal Nutrition	83.71 lakhs	2008
3	Arsenic in food chain: cause, effect and mitigation	NAIP, ICAR	Prof. S. Sarkar and Prof. T. K. Mandal, Pharma. and Toxicol.	58.51 lakhs	2007
4	AICRP on Improvement of feed resources and nutrient utilization in raising animal production	ICAR	Prof. P. Biswas, Animal Nutrition	141.62 lakhs	1997
5	AICRP on Goat improvement, Black Bengal (Field unit)	ICAR	Prof. A. K. Samanta, LPM	129.63 lakhs	2000
6	All India Network Programme on Gastro-intestinal parasitism	ICAR	Prof. J. D. Ghosh, Vety. Parasitology	44.43 lakhs	2000
7	All India Network Programme on Bluetongue disease	ICAR	Dr. S. N. Joardar, Vety. Microb.	38.46 lakhs	2001
8	Conservation of Threatened Breed (Ghoongroo Pig)	Ministry of Agril., GOI	Prof. S. Pan, LPM	63.5 lakhs	2004
9	Conservation of Threatened Breed (Bonpala Sheep)	Ministry of Agril., GOI	Prof. S. Pan, LPM	57.65 lakhs	2005
10	Poultry seed project	PDP, ICAR	Prof. S. Pan, LPM	168.75 lakhs	2009
11	The effects of Stinging ( <i>Urtica dioica</i> ) on performance of broiler chickens	Creswell Nutrition, Australia	Prof. T. K. Ghosh, Animal Nutrition	3.16 lakhs	2009
12	Effects of yeast products on broiler performance	AB Vista Feed Ingredients, UK	Prof. T. K. Ghosh, Animal Nutrition	14.31 lakhs	2009
13	Livestock related environmental pollutants, contaminants and toxicants (Monitoring of drug residues and environmental pollutant)	Outreach, ICAR	Prof. T. K. Mandal, Vety. Pharmacology and Toxicology	106.40 lakhs	2009
14	Zoonotic Diseases	Outreach, ICAR	Dr. C. Debnath, Vety. Public Health	73.04 lakhs	2009



Sl. No.	Title of the Project	Funding Agency	Principal Investigator and Department	Fund Sanctioned	Year of initiation
15	Development of marine biomaterials alone and in combination with conventional and unconventional growth factors in bone tissue engineering	DBT, Ministry of Sci. and Techni-col., GOI	Dr S. K. Nandi, Vety. Surgery and Radiology	9.00 lakhs	2009
16	Conservation of Threatened Breed (Haringhata Black Fowl)	Ministry of Agril., GOI	Prof. S. Pan, LPM	70.00 lakh	2009
17	Nanotechnology based drug delivery system for prevention of cataract: Proof of concept in a Rabbit Model	Institute of Life Sci., DBT, GOI	Dr. (Mrs.) S. Hazra, Veterinary Surgery and Radiology	93.4 lakhs	2009
18	'Effect of supplementation of emulsifiers in broiler chickens'	Nukamel NV, Hoogbuul, Olen, Belgium	Prof. T.K.Ghosh	197800	2009
19	Production of conjugated linoleic acid rich goat meat through dietary supplementation of vegetable oil and plant extract	D.B.T., GOI	Dr. G.P.Mondal	20.15 lakhs	2009
20	Enteric methane emissions from livestock and mitigation strategies	I.C.A.R.	Dr.A.K.Patra	15 lakhs	2009
21	Micro plus Konzentrate GmbH, Stadtoldendorf, Germany	Micro plus Konzentrate GmbH, Stadtoldendorf, Germany	Prof. T.K.Ghosh	373274	2010
22	Epidemiology of extended-spectrum Beta Lactamases (ESBLs) in Enterobacteriaceae group of bacteria isolated from swine in NER and swine & poultry in West Bengal'	DBT, GOI	Dr. S. N. Joardar, Vety. Microbiology	24.63 lakhs	2012
23	Identification of SNPs in leptin gene for selection of Mithun (Bos frontalis) for higher growth traits and characterization of leptin protein	DBT, GOI	Dr. S. N. Joardar, Vety. Microbiology	16.73 lakhs	2012
24	Bioavailability and efficacy of ceftioxiime in induced mastitic Buffalo	Industry - Alembic Pharma	Prof. T. K. Mondal, Vety. Pharmacology & Toxicology	5.66 lakhs	2012





Sl. No.	Title of the Project	Funding Agency	Principal Investigator and Department	Fund Sanctioned	Year of initiation
25	Bioavailability and efficacy of ceftriaxime in induced mastitic Goat	Industry - Alembic Pharma	Prof. T. K. Mondal, Vety. Pharmacology & Toxicology	1.99 lakhs	2012
26	Phenotypic characterization of Haringhata Black chicken	NBAGR & ICAR	Prof. S. Pan, LPM	10.00 lakhs	2012
27	Efficacy and toxicity study of alcoholic preparation in Wistar Rats	Industry - M/S. Granules India Ltd.	Prof. T. K. Mondal, Vety. Pharmacology & Toxicology	4.50 lakhs	2012
28	Evaluation of two Ayurvedic herbal formulations for wound healing activity in animal model	Industry - Divine Skincare India Pvt. Ltd.	Prof. T. K. Mondal, Vety. Pharmacology & Toxicology	5.84 lakhs	2012
29	To study the benefits of CLOSTAT in commercial broilers and to compare the benefits over commonly used antibiotic growth promoters AGP's	Industry - Kemin Industry South Asia Pvt. Ltd.	Prof. B. Roy, Animal Nutrition	2.04 lakhs	2012
30	Manipulation of rumen fermentation for improving growth performance of growing animals	DBT, GOI	Prof. P. Biswas, Animal Nutrition	22.21 lakhs	2012

### C.6.2. FACULTY OF DAIRY TECHNOLOGY

Sl. No.	Title of the Project	Funding Agency	Principal Investigator and Department	Fund Sanctioned	Year of initiation
1	Network programmes on R and D support for process upgradation of indigenous milk products for industrial application	ICAR	Prof. M.K. Sanyal, Dairy Technology	149.16 lakhs	1997

### C.6.3. FACULTY OF FISHERY SCIENCES

Sl. No.	Title of the Project	Funding Agency	Principal Investigator and Department	Fund Sanctioned	Year of initiation
1	Niche Area of Excellence on Surveillance of diseases of aquaculture finfish and shellfish in West Bengal and development of disease management strategies	ICAR	Prof. T. J. Abraham, Aquatic Animal Health	488.9 lakhs	2012



<i>Sl. No</i>	<i>Title of the Project</i>	<i>Funding Agency</i>	<i>Principal Investigator and Department</i>	<i>Fund Sanctioned</i>	<i>Year of initiation</i>
2	AICRP on Establishment of post-harvest technology in Fisheries	ICAR	Dr. Sreekanta Sarkar, Fish Processing and Tech.	136.00 lakhs	2004
3	NICRA project on Development of Climate resilient aquaculture strategies for Sagar and Bacanti Block of Indian Sundarbans	ICAR	Prof. R. K. Trivedi, Fisheries Environment Management	100.00 lakhs	2011
4	Research & Development of EWMBN for sustainable fisheries in Hooghly-Matlah Estuary	Central Dept. (DST sponsored, Govt. of India), DST (SERC Div)	Dr. N.A. Talwar, Fishery Engineering	16.09 lakhs	2010
5	Network Programme on Freshwater fish hatchery and transboundary diseases	ICAR collaboration with CIBA, Chennai	Prof. T. J. Abraham, Aquatic Animal Health	391.120 lakhs	2012

#### C.6.4. DIRECTORATE OF RESEARCH, EXTENSION & FARMS

<i>Sl. No</i>	<i>Title of the Project</i>	<i>Funding Agency</i>	<i>Principal Investigator and Department</i>	<i>Fund Sanctioned</i>	<i>Year of initiation</i>
1	National Information System on Agriculture Education network in India (NISAGENET)	ICAR	Dr. (Mrs.) S. Das, Scientist	3.08 lakhs	2005
2	Climate change adaptation in rural area of India	GIZ, Germany	Dr. B. K. Chand, Farm Manager	24.63 lakhs	2012

#### C.7. SALIENT ACHIEVEMENTS OF ON-GOING PROJECTS

##### C.7.1. HIGHLIGHT OF THE PROJECTS CONDUCTED IN THE FACULTY OF VETERINARY AND ANIMAL SCIENCES

##### 1. Sustainable farming system to enhance and ensure livelihood security of poor in Purulia, Bankura and West Midnapur district

The University had started the implementation of livestock intervention activities to improve livelihood of farmers under NAIP on 'Sustainable farming system to enhance and ensure livelihood security of poor in Purulia, Bankura and West Midnapore districts of West Bengal' at Lodhasuli cluster under Jhargram, West Midnapore district as a consortium partner with BCK during 2008-2009.

A target of 500 women Self-Help Groups (SHGs) from 12 villages of five Gram samsad of





Patasimul Gram Panchayet under Jhaigram block of West Midnapore district were selected and trained for scientific rearing of livestock and poultry. It is revealed from the implementation of the project that the social composition of people in the NAIP Gram samsads includes 43.35% SC, 15.37% ST and 41.28% of other categories. In study area under the 5 Gram samsads namely, Dhangri, Pathra, Patasimul, Gobindapur and Mohanpur majority of the farmers are keeping poultry, then goats, sheep, pigs and fishes as per existing population density. During last two years, 475 nos of Black Bengal goat, 70 nos of T & D pig, 81 nos of sheep, and 3500 nos of Vonraja poultry were purchased and distributed among the farmers under the project.

Alongwith this 238 of farmers/land less youth encouraged and trained for improved breed keeping. Veterinary services including medicines, vaccination against major diseases, deworming with mineral supplemented feed are regularly being provided to the beneficiaries. Moreover, Animal health camps and Immunization camps have also been organized covering all species of animals in the project area.

As a result of such activities, the project personnel were able to establish a very congenial and effective liaison with the habitant of the project villages. Even under the presently prevalent aggression and political violence in the area, the project work is progressing at a satisfactory level with full cooperation receiving from the local people. 12 nos nutritional schedules studied and standardized. 5 nos of vaccination and deworming campaigns organized. 12 nos. of veterinary services identified. 238 nos. of farmers/youth trained. The beneficiaries were also provided with the required animal feed supplements, treatment and vaccinations alongwith capacity building trainings. 66 nos Goat Kids, 23 nos Sheep kids, 19 nos Piglets were born under the project. 50 nos. of farmers introduced with integrated fish farming to increase fish production.

The major innovations are being utilized as technology interventions in the project area are as follows –

- Genetic improvement,
- Nutritional manipulation,
- Immunization,
- Health care management,
- Capacity building of the farmers

## 2. **Arsenic in food chain: cause, effect and mitigation**

The two villages (Mitrapur and Dakshin Panchpota) of Chakdaha block under Nadia district were taken under consideration and samples of straw, drinking water, urine, faecal matters, milk and hair of cattle and egg of poultry from the villages were collected for analysis of arsenic. Arsenic content in straw samples range from 1.107 to 6.315 ppm and 0.675 to 3.56 ppm at Mitrapur and Dakshin panchpota. Arsenic content in milk samples range from 0.03 to 0.08 ppm at Mitrapur, and 0.27 to 0.11 ppm at Dakshin panchpota. On the other hand Arsenic content in hair samples range from 0.78 to 10.948 and 0.588 to 6.42 ppm at Mitrapur and Dakshin panchpota. Arsenic level was above permissible limit at the above substrates. Different arsenic detoxification procedure was undertaken under the project. The study till now reveals that Zinc and Selenium have a major role for detoxification of arsenic in cattle exposed with arsenicosis.



### 3. AICRP on 'Improvement of feed resources and nutrient utilization in raising animal production'

The project has achieved some outcome which can be practically utilized which are described below –

#### A. Preparation of mineral deficiency map of different agro-climatic regions of West Bengal.

A mapping was done based on the deficiency of the minerals identified in the agro-climatic regions of West Bengal. This will help the scientists, veterinary doctors as well as the farmers to overcome the mineral deficiency of the livestock by utilizing the special mineral supplement developed by the project.

#### B. Mineral deficiency map of Sikkim and Tripura states were also prepared under the purview of the project.

#### C. According to deficiency identified in the different zones, special mineral supplement was developed and outstanding result was found in different categories of animal.

Implementation of limiting nutrients through low cost feed to low yielding livestock in two states of Bengal has resulted in :

- Improvement in health condition of experimental animals.
- Increment in the milk production in experimental cows and in late lactating animals also the production was sustained in cows.
- Experimental cows showed onset of estrous.
- There was a gain of approximately Rs. 2.00 daily through cost of milk.

#### D. Comparative studies between inorganic & organic mineral revealed better bioavailability and performance with organic mineral supplementation.

#### E. Rice distillers grain used as alternative protein rich ingredients in different animal with better performance and economic profit.

**Technology generation :** Development of area specific mineral mixture.

### 4. AICRP on 'Goat improvement, Black Bengal (Field unit)'

In India, goat by virtue of its adaptability in diverse agro-climatic condition plays a pivotal role in the economy of the weaker section and 4.2% employment generation has been accounted in goat farming in the rural sector. Besides goat keeping is also act as insurance to the poor farmers during natural hazards like drought, famine, flood etc. Following these facts, a programme had been undertaken by ICAR to accelerate the economy of farmers by utilizing the native goat genetic resources in the form of AICRP on Goat Improvement. Black Bengal Field Unit, Kolkata is one of the 6 field units adopted during last part of IX Plan period. The main home tract of the breed is throughout West Bengal although it is also available in the adjoining part of Jharkhand, Orissa, Bihar, Tripura and also available in Bangladesh.

At present the project covers 355 households in four clusters of two districts of the State namely Nadia and South 24 Pgs. The four clusters are at Hatikanda – Doluipur, Ganguria, Ayeshpur – Panchpota of Nadia district and Rangabelia Jatirampur of South 24 Pgs.



The flock statistics of Black Bengal goat during the period 2011-12 in 4 village-centers are as follows:

1. The total population at the end of the year is 1993.
2. Adult number of doe is 701 and male goat is 57 in the population.
3. A total of 1889 kids were born and 1520 goat were sold in this year.
4. Mortality number is 315 contributing 8.23% of the total population.

In the year 2010-11, 3828 number of registered goats was treated against endo and ecto- parasitic infestation. 796 goats were vaccinated against PPR and 369 goats were against goat pox. 5673 numbers of goats were supplemented with mineral mixture @ 100gm/ day for 60 days in critical period.

Mortality was found to be highest between 0-3 month's age. Enteritis, diarrhea, Pneumonia and cold & cough were the major problem in the population.

The village clusters under the project were surveyed to find out the socio-economics of the farmers. Survey includes number of family members, family education status, land holding, different animal holding and annual income.

Result revealed that, family size in the population is distributed normal. 31.38% family size 3 to 4 followed by 5 to 6.

The salient achievements obtained from the implementation of the project during 2010-12 are described as below :

1. The project involved 701 numbers of registered Black Bengal doe reared by 355 registered goat farmers rearing in four village clusters of four Gram Panchayat of two different blocks in two Districts (Nadia- Ayeshpur, Ganguria and Doluipur & South 24 Parganas - Jatirampur) of west Bengal.
2. Around half (49.01%) of the goat farming families have flock size 1 to 4 goats, where as 36.06% families rear a flock size of 5 to 8 goats and 9.86% family rears 9 to 12 goats in their flock. The flocksize of above 12 was also not uncommon and to be found among 5.07% of the farming communities. The average flock strength of the farmers has also increased from initial flock strength of 3.93 in 2002-03 to 5.45 in 2010-11.
3. The population growth, over the initial strength, of 48.89% in 2002-03 has increased to 60.03% in 2010-11.
4. A total of 65 male were selected from 956 male populations for future buck considering their 6 month body weight. The Standardized selection intensity of selected male was found to be 1.91.
5. Animals sold by the farmers have also been increased substantially from 14.46% in 2002-03 to 43.27% in 2010-11.
6. In 995 kidding, 1889 kids were born of which twin born kids were the highest (54.42%), followed by triplet kids (24.93%), then by singlet kids (15.99%) and lastly by quadruplet kids (4.65%).
7. Heritability value of body weights were estimated from sire component. The birth weight is low heritable ( $0.252 \pm 0.025$ ) in the population and heritability increased with advancement of age. The 50% ( $49.60\% \pm 2.10$ ) of the trait was found to be heritable at 6 month of age.

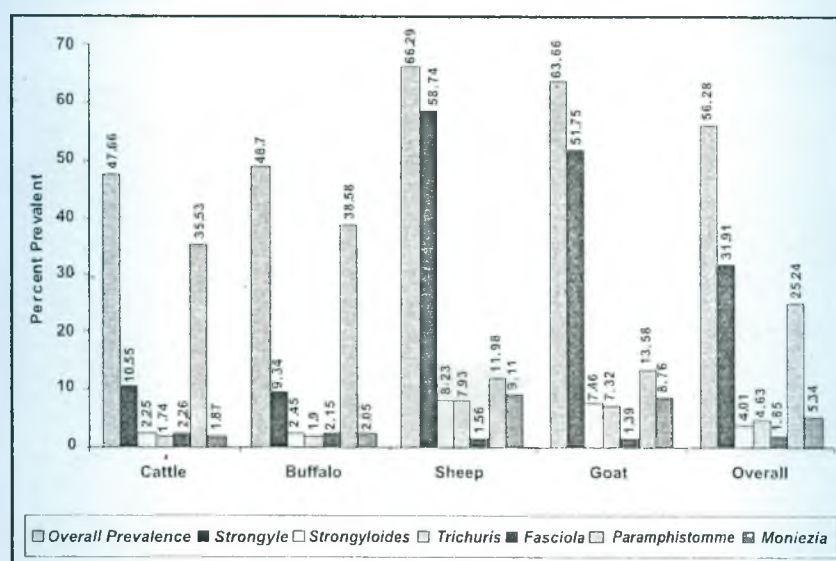


8. Genetic and phenotypic correlation of body weight was also calculated and found that all are positively correlated except the genetic part between birth and 3 month weight.
9. An effort was made for Sire evaluation based on Breeding Value estimation of body weight at 3 month & 6 month of age. Selection differential was also calculated for selected male kid at 3 month and 6 month of age.
10. There was a Selection preference towards the black colour. The colour pattern was found to be 97.99% Black and 2.01% of other varieties.
11. Average Mortality percentage in 2003-04 was 10.72%. In the current year the value was restricted within 8.23%, of which the highest value was 10.33% in 0-3 month age group and 3.70% in adult group.

## 5. All India Network Programme on Gastro-intestinal parasitism

### Salient achievements during 2010 – 2012

1. Gastrointestinal parasites were of common occurrence in all the four livestock species surveyed. Prevalence was much higher (68.81 – 70.17%) in small ruminants (sheep – 66.29% and goat – 63.66%) than in large ruminants (cattle – 47.66% and buffalo – 48.70%). The overall prevalence of gastrointestinal parasites irrespective of livestock species was 56.28%.



### Overall Prevalence of GIP in ruminant livestock of West Bengal

2. The overall prevalence of GI parasites in cattle, sheep and goat was higher in New Alluvial zone (cattle- 47.78%, sheep – 66.76%, goat – 64.95%) compared to Red Laterite zone (cattle- 47.67%, sheep - 65.14%, goat - 60.80%). Prevalence of GIP was higher in buffalo of Red Laterite zone (48.92%) than New Alluvial zone (48.59%).
3. The overall prevalence of gastrointestinal parasitism in all the four livestock species was highest in the monsoon (70.24%), followed by winter (62.71%) and the lowest was in summer (52.24%).
4. Strongyle species constituted the major nematode, of which *Haemonchus* was the predominant species followed by *Oesophagostomum* in sheep and goats.





5. The mean faecal egg count was highest in monsoon (Cattle – 286, Buffalo – 294.3, Sheep – 1072.8, Goat – 1097.1) and lowest in summer (Cattle – 178.1, Buffalo – 184.3, Sheep – 500, Goat – 490) with overall mean EPG in cattle, buffalo, sheep and goat were 219.9, 224.3, 712.9 and 711, respectively.
6. Mean worm load in small ruminants was maximum during the rainy season (sheep- 69.50, goat- 70.75) and minimum during the summer season (sheep-46, goat-41.25).
7. Commonly used anthelmintics (Fenbendazole and Ivermectin) continue to give the desired efficacy in the treatment of gastrointestinal nematodes in small ruminants. In an organized farm, resistance against albendazole was recorded for the first time in the state.
8. Bioclimatographs for *Haemonchus contortus* prepared taking into account of meteorological data (Maximum Temperature, Minimum Temperature, Total rainfall and Relative Humidity) of six years (2003 – 2008) of two agro-climatic zones of West Bengal showed no marked difference between New Alluvial and Coastal zones in predicting probable months of maximum larval activity in pasture.
9. Susceptibility of Garole and Sahabadi sheep to experimentally induced haemonchosis was compared in the study with a view to elucidating the resistance in Garole sheep, if any, against *H. contortus* infection.
  - a) Percent decline in Hb concentration was consistently higher in Sahabadi compared to Garole sheep from 14 DPI onwards and it was significant ( $p < 0.01$ ) on 42 DPI. The rate (percent) of changes in PCV due to *Haemonchus* infection did not differ significantly between the two breeds of sheep. Percent decrease in TEC was higher ( $p < 0.01$ ) in Garole sheep on 21 DPI and thereafter from 35 DPI the rate of decrease was higher in Sahabadi sheep.
  - b) Concentration of TSP in Garole sheep did not change significantly. Haemonchosis did not alter the SA concentration in Garole sheep, whereas in Sahabadi sheep it was consistently decreased from 7 DPI till the end of the study.
  - c) The percent decrease in Ca level was higher ( $p < 0.01$ ; 0.05) in Sahabadi sheep compared to Garole sheep from 35 DPI. Serum P level was not altered significantly due to haemonchosis in both the breeds. *Haemonchus* infection significantly ( $p < 0.01$ ) reduced the serum Fe level after 7 DPI and 14 DPI in Sahabadi and Garole sheep, respectively. Serum Fe level was restored in Garole sheep after 35 DPI.
  - d) Serum IgG level in terms of OD values was significantly ( $p < 0.01$ ) elevated due to *H. contortus* infection in both the breeds of sheep compared to the control. The IgG titre during the early stage of the infection was higher in Garole sheep. Garole sheep revealed stronger IgG response to *H. contortus* infection.
  - e) The results of the study lead us to conclude that the Garole sheep is resistant /resilient to *H. contortus* infection as evident from the lower negative impact of the infection on parasitological indicators, BW, serum biochemical parameters and the serum IgG response.
  - f) Under natural condition the mean faecal egg count (EPG) in Garole sheep (60.18) was significantly ( $P < 0.05$ ) lower compared to Sahabadi sheep (836.07) during the entire study period.
  - g) Haemoglobin and total erythrocyte count of Garole sheep was significantly ( $P < 0.05$ ) higher compared to Sahabadi sheep naturally infected with gastrointestinal nematodes.

10. *Haemonchus* resistant Garole sheep had a stronger serum IgA, IFN-G and IL-4 response to artificial infection with *Haemonchus contortus* compared to susceptible Sahabadi sheep. Serum IgE concentration was comparatively higher in infected Sahabadi sheep compared Garole sheep.

6. **All India Network Programme on 'Bluetongue disease'**

1. **Sero-epidemiology of bluetongue in sheep, goat and cattle of West Bengal, Orissa, Jharkhand, Assam, Manipur, Mizorum.**

A total of 1180 animal serum samples (sheep-360, goat-625 and cattle-195) were tested for sero-monitoring to detect anti-BT antibodies. The sera were collected from animals of different parts of West Bengal, Assam, Orissa, Jharkhand, Manipur and Mizorum. Out of 1180 serum samples, 594 samples (sheep-171, goat-295 & cattle-128) were found positive to anti-BT antibodies. The percent (%) positivity of animals includes sheep – 47.50%, goats - 47.20% and cattle – 65.64%.

2. **Bluetongue vector collection and identification.**

Midges (*Culicoides* spp.) were collected from different agro-climatic zones (Districts) of West Bengal and Assam. In most of the areas of West Bengal, *Culicoides schultzei* was detected. However, from in and around Kolkata, *Culicoides definitus* and *C. palpifer* were also detected besides *Culicoides schultzei*. In most of the districts of Assam, *Culicoides schultzei* was detected. However, from Kamrup Metro district, *Culicoides kamrupi* was also detected besides *Culicoides schultzei*.

3. **Isolation of Bluetongue virus from *Culicoides* vector collected from Kamarhati**

Attempts were made for isolation of BT virus from 8 batches of *Culicoides* midges collected from different districts of West Bengal using 10 to 12 days old embryonated chicken eggs. One of the samples (batch no. 5) showed characteristic changes, viz. stunted growth, haemorrhages on body parts etc. in the embryo on fourth passage level. Subsequently, the sample was inoculated to BHK-21 cell line. Characteristic CPE was observed in BHK-21 cell line, suggesting the sample was positive. The sample was subjected to RNA-PAGE after extracting RNA. It showed 10 segments of RNA with characteristic migration pattern of BTV RNA.

7. **Centrally sponsored scheme on Conservation of Threatened Breed (Ghoongroo Pig)**

Ghoongroo Pig, an indigenous (landrace) breed of pig belongs to Dooars' valley of West Bengal. The breed was unknown to scientists, planners and developers before launching of the scheme. Scientists of West Bengal University of Animal and Fishery Sciences first identified and reported about the breed. High prolificacy, faster growth, consumers' preference and adaptability to low rainfall are some of the outstanding characteristics of the breed. The unique germ plasma is under constant threat due to indiscriminate breeding with scrap variety. Most significantly, the breed has the potential to replace the exotic breed from temperate zone used for improved pig production programme.

Ghoongroo pig is most prevalent in Dooar's valley of eastern Sub-Himalayan region of West Bengal between 88° to 90° E longitude and 26.3° to 27.3° N latitude.

The animal is black in colour with compact body, thick coarse and long hair coat, long tail reaching below hock. The face is broad and flattened with upwardly curved snout, which is unsuitable for rooting. But the breed is a good grazer. The ears are large and heart shaped resembling those of elephant.





Hindquarters are heavier and rumps are drooping. Scrotum loosely hangs from body. The breed is highly docile and amenable to any form of management. Their docility is evident from their adaptation to tethered grazing. Sows show strong mothering ability. Stampede death of piglet during nursing is negligible as sows always lie down very carefully with loud grunting. Intra- and inter-sex agonistic interactions are minimum. This makes group management much easier. Production performance of Ohoongroo pig is of special interest. Average litter size at birth is  $11.92 \pm 0.06$  and litter size up to eighteen is very common. Body weights at birth, 5 months and 1 year of age are  $1.08 \pm 0.22$ ,  $58.91 \pm 1.49$  and  $116.3 \pm 0.31$  Kg respectively irrespective of sex. The breed attains puberty at 6 months of age. Gestation length, farrowing interval and service period are found to be  $109.1 \pm 0.04$ ,  $175.73 \pm 1.12$  and  $68.4 \pm 0.31$  days respectively.

Most interestingly the breed has adapted very well to South Bengal climate. It has become very popular among the pig farmers of South Bengal because of its high growth rate at the farmers' house, low health problem, excellent prolificacy, low mortality at pre-weaning stage, high quality pork and consequently high consumer demand. A male or female animal at the age of marketing (10 months) fetches a huge profit margin. This has made the breed popular in South Bengal. There is always a very high demand for weaned piglets.

#### 8. Centrally sponsored scheme on 'Conservation of Threatened Breed (Bonpala Sheep)'

A sheep of Teesta - Torsa river valley, Bonpala, is a highly threatened breed as has been identified by the National Bureau of Animal Genetic Resources, Karnal and Department of Animal Husbandry and Dairying, Ministry of Agriculture, Government of India. The breed is losing its popularity very fast due to growing scarcity of pasture in the valley as a result of expansion of crop production and restriction on grazing in forest areas. The tribal and the landless re-settlers of Bangladesh now mostly own the animals in the breeding tract. The breed is popularly known as Bonpala (Bengali). In some places they are also colloquially called *Gharpala*. These sheep derive their name from mode of rearing. In Bengali, *Bon* means forest, *Ghar* means home and *Pala* means mode of rearing. With gradual disappearance of forest and restriction on grazing in existing forest areas in Teesta - Torsa river valley (Dooars and Terai of Sub-Himalayan West Bengal), they are allowed either free or tethered grazing in close vicinity of farmers' residence.

It is a meat type sheep with small body size. The breed is prolific. Twinning is a regular phenomenon. Most interestingly the breed is now producing triplets under the scheme after genetic selection for one generation and with optimum plane of nutrition. They lamb thrice in two years. The fleece is hairy with 95 % medullae fiber and open. Fleece colour ranges from completely white to completely black with a number of intermediary tones. Belly and legs are devoid of wool. Ears are small and tubular. Tail is thin and short.

#### 9. Centrally sponsored 'Poultry seed project'

The Indian Council of Agricultural Research (under Project Directorate on Poultry, Hyderabad; Central Avian Research Institute, Bareilly) and several State Agricultural and Veterinary Universities developed improved chicken varieties (*Vanaraja*, *Giriraja*, *Gramapriya*, *CARI Shyam*, *Rajarshi*, *Swarnadhara*, *Nandanam*, *Krishna-J*, *Gramalakshmi*, *CARI Gold* etc.), suitable for rural poultry farming. Majority of these varieties resemble the native chicken, grow fast and produce more number of eggs, require low input (like feed, housing, management, health care, etc.) and sustain different hazards of the climatic and environmental changes. With these broader objectives, the Project Directorate on Poultry





has developed three promising chicken varieties which can sustain and perform better than the native (*deshi*) chicken varieties available in the country. The improved rural chicken varieties developed by PDP are Gramapriya, Vanaraja and Krishibro which are popular for their egg production, dual purpose and meat yield respectively. All these birds gained wider acceptability across the country with the limited extension and commercial propagation facilities available with the Directorate.

To meet the growing demand for these chicken varieties, to overcome the limitation and also to avoid difficulties involved in transportation of these delicate and perishable eggs and chicks throughout the country, it was felt to establish rural chicken germplasm units across the country.

The achievements of the project during reporting period is as follows –

- A Centre with a parent rearing unit, a hatchery unit and a chick brooding cum growing unit (Nursery) has been constructed with all required facilities for the purpose with a specific target set for supplying chicks.
- The centre purchased parents of improved chicken germplasm (Vanaraja and Gramapriya) from the PD on Poultry. Day old chicks are being reared as guided by the Breeder's Guide in the facilities created for the purpose.
- Adult male and female birds are being reared to produce fertile hatching eggs. Day old chicks of the improved germplasm are being hatched out of the hatchery unit, and are being reared in the nursery unit up to six weeks of age. All the inputs are being provided during the nursery phase. After the nursery phase, the chicks are being distributed to the individual farmers on cost basis.
- Recording of body weight at 4 weeks interval during growing (7-20 weeks), and egg production and egg weight at every 14 day interval during egg laying period (21-72 weeks) is being done.

### 10. Effects of yeast products on broiler performance

Different yeast products including baker's yeast, crude yeast, hydrolyzed yeast and hydrolyzed pellet were tested against an antibiotic growth promoter (bacitracin methylene disalicylate). Removal of cell metabolites and nucleotides from whole yeast was found to have improved the performance of experiment 5al broiler chickens. Hydrolyzed yeast and hydrolyzed yeast pellets were found to be a potent tool for improving broiler performance and it was concluded from the study that in absence of any severe stress hydrolyzed yeast pellets may be a better option than antibiotic growth promoters in broiler chickens. Farmers and poultry producers may take up this technology to improve broiler performance and to reduce incidence of some diseases like Salmonella in broiler chickens.

### 11. Outreach Programme on 'Livestock related environmental pollutants, contaminants and toxicants (Monitoring of drug residues and environmental pollutant)'

Monitoring of drug residues and pesticide residue in edible tissues of livestock and evaluation of their safety is the major areas of work under the project. The project is with the objective to determine marker residues and to prepare data based monograph of pesticides and drugs in animal products with special reference to metabolism study of pesticides in farm animals. Selection of sites for collection of samples has been done. Standardization of analytical methods of drugs and pesticides from animal substrates is going on under the outreach project.



It has been observed that no pesticides and antibiotic residues were present in 750 samples of meat, milk, egg and chicken collected from 17 blocks of Nadia District, West Bengal so far.

## 12. Outreach Programme on Zoonotic Diseases (Dermatophytosis and Cryptococcosis in Animals and their Public Health Importance).

The collaborating centre in West Bengal is working on "*Dermatophytosis and Cryptococcosis in animals and their public health importance*". Initially the centre targeted an epidemiological study on these two important Mycotic zoonoses. For this purpose a total of 19,464 of different species of domestic, pet and farm animals [Cattle:5928, Sheep:2935, Goat:3110, Buffalo:2882, Horse:357, Pig:729, Dog:2392, Cat:589 and Rabbit:562] were clinically examined. Among the animals examined clinically 368(6.21%) Cattle, 171(5.83%) Sheep, 227(7.31%) Goat, 208(7.27%) Buffalo, 82(22.97%) Horse, 37(5.07%) Pig, 543(22.70%) Dog, 258(43.80%) Cat and 46(8.18%) Rabbit had lesions resembling dermatomycosis on different parts of their body. Samples from these animals were first examined microscopically and simultaneously cultured in suitable culture media for the isolation of dermatophytes. A total of 1584 (8.14%) dermatophytes were isolated from all these animals [309(5.21%) Cattle, 128(4.36%) Sheep, 156(5.02%) Goat, 154(5.38%) Buffalo, 64(17.93%) Horse, 32(4.39%) Pig, 496(20.73%) Dog, 207(35.14%) Cat and 38(6.76%) Rabbit]. Among the species of dermatophytes- *Microsporum canis*, *M. gypseum*, *M. nanum*, *Trichophyton verrucosum*, *T. mentagrophytes*, *T. rubrum* are important isolates. Different epidemiological data have been collected and stored for analysis from all clinically suspected animals. Process for collection and analysis of human samples is in progress. Different isolation and identification procedures for dermatophytes have been standardized in the project laboratory. Isolation of *Cryptococcus* from different environmental samples specially pigeon droppings and excreta from other domestic and pet birds are also in progress. About 1000 samples have been studied with a positivity of about 9%, of which pigeon droppings is found as the main source.

## 13. Centrally sponsored scheme on Conservation of Threatened Breed (Haringhata Black Fowl)

Haringhata Black, an indigenous fowl genetic resource came to the notice of scientists, planners and developers 25 years back by virtue of its superb adaptability to back yard system, productivity and disease tolerance. The breed has been listed by Acharya and Bhat (1984), NBAGR (2004) and World Watch List (FAO, 2009). However, the indigenous breed, like others is at risk due to market competition with commercial layer and broiler of synthetic strain (Singh and Singh, 2004). The breed is constantly losing genetic identity (purity) due to unregulated breeding with other breeds in the back yard. Farmers' ignorance coupled with lack of attention of other stakeholders has led to a threat to the breed. Due to genetic dilution the breed has developed several defects, like poor body conformation (originally ideal layer type), reduction in body size and loss of egg productivity.

With the re-emergence of the back yard poultry production system as one of the versatile tools for livelihood and nutritional security, the breed would find its place back amongst the farmers. Rehabilitation measures may be taken alongwith awareness generation through farmers' training and developing skill-pool of Government officials, academicians, scientists and non-government officials. The population of near-ideal and true-to-the breed birds appears to be 400-500 in the core area of the breeding tract (Haringhata block of Nadia district).



#### 14. Nanotechnology based drug delivery system for prevention of cataract: Proof of concept in a Rabbit Model

The project on C<sub>1</sub> was primarily aimed at prevention of cataract cases and their remedies. In animals, the objective of studying the effect of native VS nano particle based curcumin for anterior capsular cataract is going on.

During the project, the following achievements were obtained through implementation of the project -

1. Conducted trial with nanoformulation of drugs for prevention of posterior capsular opacification using three different routes.
2. Pharmacokinetics for the drugs were studied by HPLC.
3. Clinical and histological studies done to establish effect of the drug.

#### 15. Nukamel, Belgium sponsored project on 'Effect of supplementation of emulsifiers in broiler chickens'

In this project, application of dietary emulsifiers is being tested on broiler chickens. Different types of conventional and nutritional emulsifiers are being tested under the project. With the objective to test the efficiency of dietary supplementation of emulsifier on performance of broiler chickens and to evaluate the comparative efficacy of different conventional and nutritional emulsifiers, the project work is going on.

The findings of the project till now indicated that supplementation of emulsifier can improve the digestibility of high-energy broiler diets. Farmers and poultry producers may take up this technology to improve broiler performance by supplementing high-energy broiler diets with emulsifiers.

#### 16. Production of conjugated linoleic acid rich goat meat through dietary supplementation of vegetable oil and plant extract

The project is being undertaken with the following objectives -

1. In vitro screening of vegetable oils and plant extracts for their possible role in regulating rumen biohydrogenation.
2. Investigate the effects of addition of graded levels of vegetable oil in the diet of goat on animal performance and fatty acids especially CLA content of muscle and adipose tissue, and carcass characteristics.
3. Explore the effects of supplementation of different plant extracts in diet containing the vegetable oil on animal performance and fatty acids especially CLA content of muscle and adipose tissue, and carcass characteristics in goat.

Different plants for preparation of plant extract has been selected. Standardization of In vitro method.

#### 17. Enteric methane emissions from livestock and mitigation strategies

Following technical programme is going on under the project -

- a) In vivo assessment of methane production from commonly used feeds and fodders.
- b) Prediction model for estimating methane production in ruminants.



- c) Methane mitigation strategies by developing alternate hydrogen sinks (acetogens) using nutritional and biotechnological approaches.

## 18. Identification of SNPs in leptin gene for selection of Murrah (Bos indicus) for higher growth traits and characterization of leptin protein

### Purification and Characterization of animal leptin proteins

Salt fractionated crude serum protein and crude protein from adipocyte tissue (after sonication) was semi purified using column chromatography (gel filtration) technique. SDS-PAGE was performed to assess the polypeptide profiles of the gel permeated proteins. Further, 2D gel electrophoresis of crude adipocyte tissue showed the presence of several proteins with various ranges of molecular weight and pI. There are several proteins present in the gel in the range of pH 5.2-6.8 and so, there is chance of presence of leptin protein in used samples. We used both from cattle and goat and their 2D analysis showed that the marked difference between them in adipose tissue. The difference of protein expression is the result of different age group and body mass.

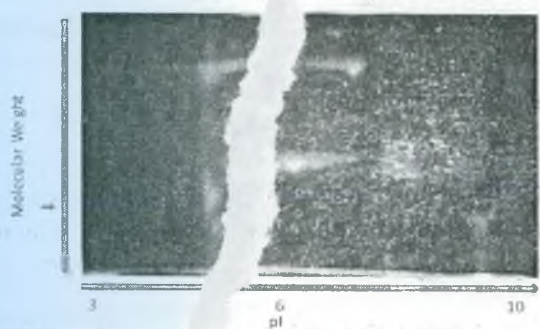


Fig.. 2D gel electrophoresis of cattle adipocyte derived crude proteins.

X-axis represent pI range 3-10 where Y-axis represent molecular weight of 10-224 kDa range.

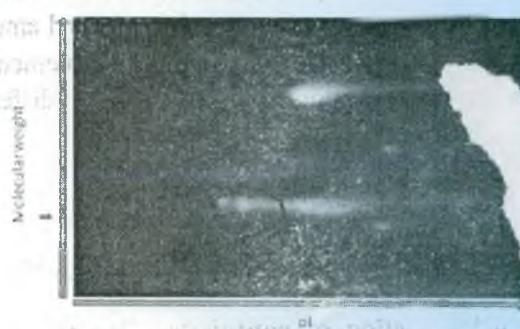


Fig. 2D gel electrophoresis of goat adipocyte derived crude proteins

X-axis represents pI range 3-10 whereas Y-axis represents molecular weight of 10-224 kDa range.

## 19. Bioavailability and efficacy of ceftizoxime in induced mastitic Buffalo

Bioavailability and efficacy of Ceftizoxime were conducted in lactating buffaloes. The buffaloes were induced mastitic with pure culture of *Staphylococcus aureus*. Ceftizoxime was administered intravenously to healthy and mastitic buffaloes. Blood and milk samples were collected at different time intervals for analysis of drug. It is observed from the results that Ceftizoxime persisted in blood and milk for a long time in mastitic animals compared to healthy animals after I/V route. Drug is highly effective against mastitis after I/V route in buffaloes. Biological half life and AUC values in blood and milk of mastitic animals were higher compared to healthy animals after I/V administration. Further, Ceftizoxime persisted for a long time in milk compared to blood in buffaloes which might be due to more affinity of drug to accumulate in adipose tissue of mammary gland. From the milk kinetic parameters of Ceftizoxime in buffaloes, the calculated dosage regimen of the drug is 6.03 mg/kg as single I/V route which will maintain a maximum concentration of 18.33 µg/ml and minimum of 1.09 µg/ml of milk till 72 hr.

## 20. Bioavailability and efficacy of ceftizoxime in induced mastitic Goat

Salient achievements of the Project in the reporting period is as follows :

- Minimum inhibitory concentration of Ceftizoxime are 1.1, 1.0 and 1.3  $\mu\text{g/ml}$  for *E.coli*, *Staphylococcus sp* and *Streptococcus sp*.
- To treat mastitis intravenous route of Ceftizoxime is preferred in cows while intramuscular route is recommended in goat.
- Recommended dose of Ceftizoxime to treat mastitis in cows is 5mg/kg b wt. after single intravenous route which will maintain a maximum concentration of 21.29  $\mu\text{g/ml}$  and a minimum of 0.44  $\mu\text{g/ml}$  of milk till 96 hr.
- Physiological, biochemical and haematological parameters reveal that Ceftizoxime has no adverse effect on goat. The drug neither cause hepatic damage not kidney damage after single administration.

## 21. Development of marine biomaterials alone and in combination with conventional and unconventional growth factors in bone tissue engineering

As per mandate of project, marine snail from *Achatina fulica* has been extracted and lyophilized. Animal trial with chitosan and coralline hydroxyapatite alone and in combination with snail extract and Insulin like growth factor-1 (recombinant) have been carried out in rabbit model to understand the bone healing in critical size defect in tibia bone. From the present two years work, it is observed that both the two biomaterial chitosan and coral alone have bone healing property as osteoconductive material. This two materials along with two growth factors like BMP-2 and IGF-1 showed tremendous potential in bone regeneration and can be used for local delivery system of growth factors. The third year work is still left which will be carried out in next year.

## 22. 'Development of Model for Sustainable Backyard Poultry Farming in West Bengal' Salient achievements of the project :

The project was implemented by West Bengal University of Animal & Fishery Sciences in collaboration with Animal Resources Development Department, Government of West Bengal and three tier Panchayat system existing in the state. It was carried out during 2008-09 to 2011-12. The fund utilized during the period was Rs. 1104.08 lakhs.

Initially selection of the beneficiaries was made on the basis of random survey analysis report in the selected blocks in each of the agro-climatic zone of West Bengal. About 71.50% stakeholders belonged to below poverty line (BPL) category. Percentage of Schedule Caste, Schedule Tribe, Backward Community and Minority stakeholder were nearly 43.00, 14.80, 9.70 and 17.30, respectively. All the stakeholders were the member of women self help group (SHG). They were provided rural poultry house, Rhode Island Red (RIR) birds (a dual type fowl), supplementary poultry ration (before laying period), dewormer, medicine, vaccine, seed of the vegetable for kitchen garden and pit of vermicomposting to learn the scientific rearing practice on hand of backyard poultry farming as an integrated approach.

Selected farmers were divided into 24 research modules (groups) considering run space (3 types), supplementary feed provision (4 types) and age of chicks provide (2 types), to evaluate the best module for economic rearing practice as a model for sustainable backyard poultry farming at each zone / area.





The hatchable eggs were procured at higher price in the project established hatchery unit. The edible eggs were preserved in cold storage to get maximum price. Project was implemented through regular supervision utilizing the existing infrastructure of state Animal Resources Development Department and the Panchayat System. Monthly report from the village wise engaged Key Communicators, periodical discussion and evaluation, group meeting, health camp, poultry fair and various types of awareness and motivational programmes had been conducted.

Infrastructure like, RIR poultry breeding farm, hatchery unit, indigenous live germ-plasm preservation unit, poultry training institute, environmental poultry stress assessment laboratory and poultry disease diagnostic laboratory were developed in the University campuses utilizing the funds of the project.

#### **Innovative approaches taken up by the project :**

- (a) Rural backyard poultry shed,
- (b) Backyard poultry rearing guidance through date calendar,
- (c) Weekly record keeping register for rural women farmer,
- (d) Backyard Poultry Fair,
- (e) Book for backyard poultry farming as an integrated approach with horticulture and aquaculture – ‘Gramin Jibiker Nuton Chhanda’,
- (f) Marketing support through collection of backyard poultry produced hatchable eggs at higher price and
- (g) Documentary films on backyard poultry farming with an integrated organic farming for motivating as well as teaching guide to the farmers

#### **Basic data generated for backyard poultry farming:**

- Best management combination of RIR farming at backyard – 21 days brooding chicks with a run space of 20 sq ft per bird and supplementation of 50% commercial ration,
- Best zone for backyard RIR farming – Coastal zone,
- RIR starts laying at backyard rearing – 165 days and showed profitable rearing upto 490 days,
- One RIR can lay 155 eggs within its profitable period of rearing and one farmer can get 1025 eggs which is equivalent to 56.16 kg from a flock of 20 straight run chick,
- Mortality rate due to infectious diseases of backyard RIR – 14.70%,
- One RIR can produce 1.48 kg protein in form of egg and meat.

#### **Outcome of the project:**

Total eggs produced in one flock by the stakeholders were nearly 25.87 lakh and nearly 113.58 MT meat was produced from one flock, value of which was approximately Rs. 100.38 lakh. And Rs. 114.72 lakh respectively. Considering distribution of various flocks to different stakeholders project contributed directly to the GDP nearly Rs. 424.71 lakh. Nearly 2,05,000 Man-days were created annually by the project.

The Project developed nearly Rs. 269.44 lakh community assets for the farmers of the state to support them for scientific backyard poultry rearing. Besides, project developed some basic





infrastructures worth of Rs. 468.32 lakh at the University level to support the farmers of the state that are being utilised for entrepreneurship development and teaching, research and extension activities of the University.

### **C.7.2. HIGHLIGHT OF THE PROJECTS CONDUCTED IN THE FACULTY OF DAIRY TECHNOLOGY**

#### **1. All India Network programme on 'R & D Support for process up-gradation of indigenous milk products for industrial applications'**

**Sallent achievements of the project :**

**Area of research work of the project:**

- i. Market Survey for assessment of chemical, microbiological, rheological and sensory attributes of Traditional Indian Milk Products of Eastern Region such as rasogolla, sandesh, pantooa, Gulabjamun, Peda, Kalakand, Burfi, Sarbhaja, Langcha, Chhanar jelebi, phirni etc.
- ii. Development of manufacturing process for rasogolla, sandesh and pantooa from buffalo milk, and phirni from cow milk.
- iii. Studies on the shelf life characteristics of buffalo milk rasogolla, sandesh and pantooa developed in the laboratory.
- iv. Assessment of heavy metal contaminants and micronutrients present in cow and buffalo milk procured from different districts of West Bengal and milk products collected from West Bengal, Bihar, Jharkhand, Assam and Orissa.

**Objective of the project:**

1. To characterize the market samples of traditional Indian dairy products available in eastern India.
2. To standardize the manufacturing procedures of traditional Indian dairy products such as rasogolla, sandesh and pantooa from buffalo milk and phirni form cow milk.
3. To assess the shelf life of market samples of traditional Indian dairy products such as rasogolla, sandesh, pantooa and phirni available in kolkata and its suburban areas.
4. To determine shelf life of laboratory made rasogolla, sandesh, and pantooa with or without chemical preservatives and packaging.
5. To estimate the concentrations of heavy metals and micronutrients present in milk from the state of West Bengal and milk products procured from the states of West Bengal, Bihar, Jharkhand, Orissa and Assam in eastern India.

**Progress of achievements:**

1. Concentrations of heavy metals such as arsenic, lead, cadmium, mercury and chromium and micronutrients such zinc, copper and manganese in traditional Indian dairy products namely rasogolla, sandesh, gulabjamun, peda and kalakand collected from the different districts of West Bengal, Orissa, Assam, Bihar and Jharkhand were estimated using Atomic Absorption Spectrophotometer.
2. The shelf life of market samples of various traditional Indian milk products of eastern region such as rasogolla, sandesh, pantooa, Gulabjamun, Peda, Kalakand, Burfi, Sarbhaja, Langcha, Chhanar jelebi, phirni etc. collected from different places in West Bengal were studied during storage at



room temperature ( $30 \pm 2^\circ\text{C}$ ) and at refrigerated temperature ( $7 \pm 1^\circ\text{C}$ ).

3. The manufacturing process of rasogolla, sandesh and pantooa from buffalo milk and phirni from cow milk was standardized.
4. Procedure for manufacture of a ready-to-reconstitute phirni mix powder was standardized.

#### **Salient achievements in general:**

- a) Physico-chemical and rheological profile of traditional Indian milk products of eastern region such as rasogolla, sandesh, pantooa, Gulabjamun, Peda, Kalakand, Burfi, Sarbhaja, Langcha, Chhanar jelebi, phirni etc. collected from different places in West Bengal were evaluated
- b) Manufacturing procedures of rasogolla, sandesh and pantooa from buffalo milk and phirni from cow milk were standardized.
- c) A ready-to-reconstitute phirni mix powder was developed.
- d) Shelf life of market samples of rasogolla, sandesh and pantooa procured from different markets at Kolkata and its suburban areas during storage at ambient and refrigeration temperature was assessed.
- e) Shelf life of laboratory made rasogolla, sandesh and pantooa (with or without chemical preservatives) and packaged in LDPE and laminated packages was determined during storage at ambient and refrigeration temperature.
- f) Concentrations of heavy metals such as arsenic, lead, mercury and cadmium and micro-nutrients like manganese, copper and zinc in cow and buffalo milk procured from nine districts of West Bengal were estimated.
- g) Contents of heavy metals such as arsenic, lead, mercury and cadmium and micro-nutrients like manganese, copper and zinc in milk products e.g. rasogolla, sandesh, kalakand, gulabjamun, peda etc. collected from nine districts of West Bengal, three districts in Bihar, two districts of Jharkhand, one district in Assam and three districts in Orissa were estimated.

#### **Technology generation:**

1. Procedures for preparing good quality rasogolla, sandesh and pantooa from buffalo milk and phirni from cow milk were standardized.
2. Procedure for making a ready-to-reconstitute phirni mix powder was developed.

#### **Recommendation for farmers:**

Technologies for making good quality rasogolla, sandesh and pantooa from buffalo milk and phirni from cow milk as well as a ready-to-reconstitute phirni mix powder are available for adoption by the farmers/processors.

### **C.7.3. HIGHLIGHT OF THE PROJECTS CONDUCTED IN THE FACULTY OF FISHERY SCIENCES**

#### **1. AICRP on 'Establishment of post-harvest technology in Fisheries'**

Salient achievements during the reporting period :





- a. Skill up-gradation of fisher folk on processing of fish and fishery products through training and field demonstration had been carried out.
- b. Standardization of brine concentration for treatment of fish prior to drying was done. The fish samples were immersed in 15%, 20% and 25% brine concentration for about 24 hours and moisture content was analyzed for every 6 hours interval and 15% brine was standardized as it gave the lowest moisture content and showed lower bacterial load with good organoleptic quality.
- c. Different drying methods were evaluated like sun drying (pressed and un-pressed) and solar drier (pressed and un-pressed) to standardize the best method. The moisture content was analyzed along the 3 days period of drying. Although, sun dried, pressed showed a good decrease in moisture content during the first three days, solar dried samples had better acceptability after 90 days of storage.
- d. Attempts were being made to recover chitosan from shrimp waste generated from fish processing plants. Trials were conducted to evaluate the effect of chitosan in preserving peeled shrimps under refrigerated condition.

## 2. **NICRA project on Development of Climate resilient aquaculture strategies for Sagar and Basanti Block of Indian Sundarbans**

For the year 2011-12, three programmes were taken up –

- (i) survey among the fish farmers of Sagar & Basanti blocks to know the current aquaculture practices, climate change trends and prevailing coping measures.
- (ii) tolerance study of six selected fish species in relation to abiotic climate change stress like salinity and
- (iii) Evaluation of the adaptive capacities of three aquaculture candidate species.

### **Result in brief (2011-2012)**

1. The analysis of survey results revealed that majority of surveyed farmers in two blocks are marginal and small-scale farmers and fresh water fish culture is more prevalent. IMC is the most common group of fishes under freshwater culture system followed by Java punti (*Puntius javanicus*), Tilapia (*Oreochromis mossambicus*) and Rupchanda (*Pygocentrus nattereri*). Survey results also revealed that the inhabitants of Sundarban are experiencing extended & extreme summer, erratic monsoon and short winter. The frequency and intensity of extreme weather events like cyclone and storm surge have increased over the period of time. Fishponds in low-lying areas of both two are prone to coastal flooding leading to breach of pond dyke, ingress of saline water into freshwater ponds, escape of fish stock from the pond, entry of other (often unwanted) fish species, fish mortality etc. Risk analysis of climate induced threats associated with aquaculture revealed that in both Sagar and Basanti blocks, farmers considered breach of pond embankment, mortality of fishes due to saline water ingress as extreme risk; escape of fish stock and diseases as high risk; entry of unwanted species, retardation of growth and deterioration of water quality as medium risk; and damage of pond environment as low risk. The coping mechanisms adopted by the farmers as revealed by the survey are increase in pond dyke height; repair and strengthening of dyke; plantation on dyke; dewatering and addition of fresh/rain water; application of chemicals/ lime/ dung; addition of tree branches in pond for hide outs etc.
2. During the tolerance study of few selected fish species in relation to abiotic climate change stress like salinity it was found that *Oreochromis mossambica* (Tilapia) exhibited maximum salinity tolerance





(21‰), followed by *Puntius sarana* (Olive barb), *Cyprinus carpio* (Common Carp), *Clarias batracus* (Indian Magur) (all 13‰), *Pangasius sutchi* (Pangus) (12‰) and *Labeo rohita* (Rohu) (11‰).

3. Based upon results of the growth performance study and adaptive capacities at various salinities it was found that fishes tend to naturally adapt till a certain level of salinity (in this case up to 5 ‰) but show significant retardation in growth at higher salinity (in this case 10 ‰).

### 3. Research & Development of EWMBN for sustainable fisheries in Hooghly- Matlah Estuary

#### ► Salient achievements during the reporting period: 2010-12

1. Collection of data was carried out on fish catches of on previous year from documented reports of Dept. of Fisheries, Zoological Survey of India, Govt. of West Bengal, ICAR and other National Institutes.
2. Benchmark survey of existing conventional winter migratory bag net (CWMBN) was conducted at different fishing villages (such as Kakdwip, Nainan, Nurpur and Falta), landing centers (such as Canning, Kakdwip, Namkhana, Fraserganj, Kalisthan, Sagar and Diamond Harbour) and different fishing camps existed during winter season along lower stretch of estuary.

*It has been observed during survey that existing conventional winter migratory bag net (CWMBN) is an unselective one, which catches shrimp post larvae in the inshore area, rivers and canals, also catches enormous numbers of eggs, larvae and fry of many fishes, shrimps, prawn, crabs, and molluscs.*

3. Fabrication of the new conventional winter migratory bag net (CWMBN) and Eco- winter migratory bag net (EWMBN) has been done based on the observation of the previous year's survey and design procedure suggested by the Bay of Bengal programme.

### C.7.4. HIGHLIGHT OF THE PROJECTS CONDUCTED IN THE DIRECTORATE OF RESEARCH, EXTENSION & FARMS

#### 1. Pilot project on climate-resilient adaptation through physical protection and enhanced food production for Indian Sundarbans

The Indo-German project is being implemented in Mausuni island of Sundarban which is located in Namkhana block of South 24 Parganas. It is based on the adaptation hypothesis: Reduced sensitivity of crops to brackish water inundation and better community preparedness for disasters will result in enhanced adaptive capacity of the target group/communities in light of current and future climate change impacts. During the project period, following activities will be completed.

- Micro-level risk zoning and spatial planning will be undertaken to help identify low lying areas of Kusumtala mouza. Close grid elevation survey using Auto Level Instrument will be carried out to map micro level elevation zones. The height from Mean Sea Level (MSL) of the embankment will also be determined by the survey.
- Physical and social vulnerability of the households of Kusumtala will be assessed along with micro-level zoning and spatial planning. The components of the assessment will be house type, topographic elevation and time distance from the eroding embankment, and socio-economy.
- Based on soil and water salinity data, suitable indigenous paddy variety will be selected. The expertise of Central Soil Salinity Research Institute, Canning will be used for selection of paddy variety. Field

level man power will also be engaged to find the selected paddy variety from villages, if not available with the Institute. The salinity data for soil and water will also be used for selection of suitable fish species by the University.

- Implementation of climate adaptive livelihood options will be undertaken after reaching an agreement with the community and other stakeholders (local Gram Panchayat, NGO, CBOs) of Baliara and Kusumtala mouzas. Selected vulnerable households will be encouraged to participate in pilot demonstrations.
- Institutional mechanism for disaster risk reduction for Kusumtala will be established involving local CBO and youth volunteers of the community. Necessary disaster preparedness training will be imparted to the members of the teams.
- Through a participatory approach, community members and other local stakeholders will undertake an assessment of the implemented activities. This will help to evaluate whether the objectives of the project are achieved through such interventions so that modifications if necessary can be made for replication.

## **2. National Information System in Agricultural Education Network of India (NISAGENET)**

The National Information System on Agricultural Education Network in India (NISAGENET) portal is being maintained at the Central Server of IASRI, New Delhi under the supervision of NISAGENET team, IASRI, to provide reports on agricultural education in India. It provides a unified information system for collection, compilation and analysis of data about the activities of the agricultural education system in India. The portal provides a wide spectrum of information relevant to the SAUs and Deemed universities under ICAR.

West Bengal University of Animal and Fishery Sciences had established a NISAGENET Cell in January, 2005 to update and upload information about the University on the NISAGENET portal server.

The NISAGENET system provides an uniform system on collection, compilation and analysis of information about the activities of the agricultural education system in India. It will provide all the information as desired by National Statistical Commission (NSC-2001). The statistical data is being provided to Ministry of HRD from IASRI, New Delhi, as per requirement from time to time.

## **C.8. REMARKABLE TECHNOLOGIES GENERATED / REFINED THROUGH THE RESEARCH PROJECTS**

The West Bengal University of Animal and Fishery Sciences has remained engaged in conducting various research programmes since its inception in 1995 monitored by the Directorate of Research, Extension and Farms. This Directorate has identified fewer remarkable technologies, which have been generated or evolved through the research projects /schemes by the untiring efforts of the learned faculty members and scientists of the University in its three faculties. Such evolvement of remarkable technologies are definitely to be considered for further development and refinement keeping in view on the availability of physical and financial facilities in the hand of the researchers.

Some of the remarkable technologies evolved or refined in the three faculties of the University are listed as hereunder as per availability of records : -





### C.8.1. FACULTY OF VETERINARY AND ANIMAL SCIENCES

Sl.No.	Name of the Technology	Technology Developer/ Deptt.
1	Recycling of Rumen Offal's Effect of supplementation of emulsifiers in broiler chickens	Prof.T.K.Ghosh
2	Recycling of Rumen Offal's Utilization of Slaughter house waste as animal feed.	Prof.T.K.Ghosh
3	Recycling of Rumen Offal' Development of 'Purline white ducks for shuttle cock production	Prof. G. Samanta
4	Antibody-ELISA based technique for early diagnosis of caprine oesophagostomosis	Prof. J.D.Ghosh,
5	Copro-antigen detection ELISA for early diagnosis of caprine oesophagostomosis	
6	Productivity enhancement in goat and sheep by tactical use of anthelmintic medication	
7	Bioclimatograph as a tool for forecasting economically significant level of gastrointestinal parasitism in ruminant livestock.	
8	Identification of anticoccidial biomolecules of a marine snail	
9	Developed live attenuated lentogenic strain Ranikhet Disease vaccine from local isolate of RDV	Prof. Chanchal Guha
10	Developed modified/purified F strain and R2B strain vaccines from commercial available vaccine	Dr. Ujjwal Biswas

### C.8.2. FACULTY OF DAIRY TECHNOLOGY

Sl.No.	Name of the Technology	Technology Developer/ Deptt.
1	Procedures for preparing good quality rasogolla, sandesh and pantoa from buffalo milk and phirni from cow milk were standardized.	Deptt. of Dairy Technology
2	Procedure for making a ready-to-reconstitute phirni mix powder was developed.	
3	Improvement of Texturized Soy Ball in sugar syrup from Soy Chhana	Anindita Debnath, Deptt. of Dairy Technology
4	Studies on Preparation of Chhanabara	Jui Lodh, Deptt. of Dairy Technology



**D****TRANSFERABLE TECHNOLOGIES**

Through various research programmes undertaken in the three faculties and the Directorate of Research, Extension & Farms of the University have generated / evolved certain useful technologies, which intum, would help to enhance the income and livelihood of the State farmers. Such technologies through proper refinement would also be applicable to the other regions of the country benefiting the vast farming community of the nation. The technologies developed through researches are as follows :

1. Through the researches on animal biotechnology the DNA barcodes for the Royal Bengal tiger and also of domestic cats have been developed.
2. In view of importance of parasitic diseases affecting the productivity of livestock, technologies have been generated for spot and immediate diagnosis of the diseases causing both morbidity and mortality losses.
3. Immuno-biochemical techniques have also been standardized for characterization of parasitic and bacterial antigens.
4. Sandwich ELISA- a new sero-diagnostic tool has been first evolved for pre-patent, low level of infection and clinical Fasciolosis and other gastro-intestinal nematodes in cattle and buffaloes of the State. The evolved test might contribute to the control programme of animal nematodes especially *Fasciolosis* in the Country.
5. Technology has been generated to optimize micronutrient nutrition of livestock and region specific mineral supplement has been developed by AICRP on improvement of feed resources and nutrient utilization in raising Animal Production. Feeding of this supplement to the livestock at field level has revealed excellent result in improving the productive and reproductive performance of livestock of the state as well as initiated action to minimize the production of methane, a green house gas responsible for global warming.
6. The technology of developing value added products from ducks have been evolved. The products included the duck sausage, meat balls, duck hams, duck prickles and duck tandoori, which were compared with the similar types of products from chicken meat and found the same in terms of physiochemical and sensory parameters. This could be transferred to the small scale processing units for production of such products having market values and would provide better prices for the ducks and the consumers can also get a taste of duck products, which are unique in character.
7. Production of low fat health meat from goat and broiler chicken by supplementation of a mineral mixture enriched with chromium.
8. Technology for conversion of undigested rumen contents dumped at the slaughter house into valuable livestock feed are evolved.
9. The addition of antibiotic (ceftriaxone-sulbactam) with different bio-ceramics proved its efficacy in



controlling osteomyelitis in animal model, as it released high levels of antibiotics over a prolonged period. Further, bi-phasic calcium phosphates with predominately  $\beta$ -TCP content was found to be an efficient carrier material for antibiotic compounds even in refractory infections.

10. The epidemiological mapping of devastating Bird flu pandemic has been developed by finding out the main causes of spread of infection in the State. The possible general and specific recommendations have been formulated for effective control and containment measures of Bird flu occurrence in West Bengal.
11. Specific- and non-specific immune-effector mechanisms have been characterized in Indian major and minor carps.
12. While studying the autecology's of hog deer (*Axis percinus*), an action plan to conserve this threatened wildlife in the protected areas of West Bengal has been formulated and submitted to the State Government for implementation.
13. Calcium chloride has been established as a new chemosterilizing agent for the mass sterilization programme of street dogs to control rabies, a zoonotic disease of human and animals.
14. A technology based on tactical use of anthelmintic has been devised for enhancing the profitability of goat rearing. A method based on ELISA has been developed for the diagnosis and /or differentiation of naturally occurring gastro intestinal nematode infection in goats has been developed.
15. Technology has been generated for formulation of economically viable balanced complete feed for cattle and buffaloes at different level of milk yield. Attempt has been made for development of easily accessible software for "least cost complete formulation" with available resources.
16. Garole sheep, a highly prolific breed of Sundarban delta has been recognized as the prolific most breed of the world. The genetic material has been utilized to develop many prolific sheep breed of the world, including famous Booroola Merino of Australia. This University has characterized the breed and has been actively engaged in conservation of this valuable genetic material.
17. Bonpala sheep is a threatened breed of sheep to the Duar's valley of North Bengal and Southern Sikkim. The breed is also prolific producing twins in 40% lambing. This University has been constantly engaged in characterization of this breed and also conservation through propagation among farmers.
18. Bengal goat, a prolific breed was characterized in details. It is also prolific breed producing chevon having low cholesterol and good quality of leather.
19. Khoongroo pig is the most outstanding amongst the recognized indigenous pig breed of the country. It is highly prolific producing litter size at birth 12, occasionally 18 litters at birth has been noticed. The breed can attain a body weight of 70 kg. at puberty at 7 months of age. This University was first identified the breed on its characteristic. As a threatened breed, this University has also engaged in conservation of the breed through its propagation. Though the breeding tract is Dooars valley of West Bengal but it is doing fine in South Bengal too.
20. Since Khaki Campbell ducks depend heavily on supplementary feed, farmers found rearing of Khaki Campbell ducks very expensive. Up gradation of local breed of duck by crossing deshi females with khaki Campbell male was found to give best result. Recommended number of ducks per ha. water spread area is 200-400. However, during the course of study, the duck density of 250 nos. per ha. water spread area is found to be most suitable.





21. Recommended stock density for Indian Major Carp seed is 5000-10000/ha. However, stocking density of 8000/ha. was found to give best production.
22. Recently developed herbicides (Isoproturon, Napropamide, Bifenox, Chlorprofam, phenpyroximate, ACTP ester) on animal experimentation reveal that these molecules are almost non toxic to animals.  
Polyherbal drugs like Livina® and Livsee® are hepatoprotective in animals.  
Polyherbal drugs Fibrosin® facilitates the absorption of antibiotics in mammary gland of cow with mastitis.  
Aspirin® is highly effective analgesic and antipyretic in ruminant with least side effect.  
Livodin®, a Polyherbal drug is non toxic to rats at the dose of 10mg/kg body weight.
23. Use of some low cost eco-friendly herbal drugs to enhance milk production and immunity has been evaluated.
24. Green fodder production technology in rainfed disadvantageous districts is available.
25. Adequate livestock & poultry health care support system to prevent both morbidity and mortality losses.
26. Fodder development through integration of food, horticulture and fodder crops.
27. The utilization of Sal seed & Mahua meal seed in livestock feed, which are available in plenty in the district of Purulia and Bankura in West Bengal for economic milk production.
28. Model for development & regeneration of common property resources for use by the poor livestock farmers.
29. The merits and demerits of the use of probiotics in fresh water aquaculture have been derived.
30. Computer based programme to determine the nutritional status of livestock has been evolved.
31. Stocking of 6-12 month old stunted Carp (100-150 g size) instead of fry or fingerling in the pond for higher fish production. Average fish yield was 3560 kg/ ha/year. Income: Expenses ratio was 2.68 with net-profit of 1,10,595 ha/ year. *Masobrachim rosenbergi*.
32. Inclusion of high value species freshwater prawn in carp fishery farming. Average fish yield of fish and prawn were 2184 kg and 122 kg respectively per ha. Carp of 9 month. Income: Expenses ratio was 2.16 with net-profit of Rs. 68,400/- per ha per crop.
33. Integration of duck rearing with fish farming has been found more profit through integrated farming system.
34. Collection of miscellaneous fish juveniles from paddy fields during monsoon & culturing them in seasonal ponds for 4-6 months. Income: Expenses ratio was 3.14 with net profit of Rs. 26,000/- per ha per crop.
35. Livelihood improvement of fishermen through culture of fish in village canal. After 6 months of culture period, the average production of fish was 520 gm. Income: Expenses ratio was 3.1.
36. Endangered and threatened fish varieties of the State have been identified.



37. Technologies for proper utilization of low cost unutilized marine fishes by value addition have been established.
38. Low cost technology on value addition to dairy and meat products.
39. Technologies for hygienic preparation of certain milk products instantly like golap jamun, rasogolla, sandesh, khir and khoa etc. have been formulated.
40. Trypanosomiasis, an economically important disease of cattle and buffaloes was found highly prevalent in hot and highly humid months of the year in the State of West Bengal. Isometamidium chloride / hydrochloride at the dose level of 0.5 mg/kg I.M. at 1% solution in distilled water was established highly effective to control the disease within 24 hours.
41. Modified DNA isolation and Polymerase Chain Reaction (PCR) technology.
42. HPLC determination of residual antibiotics and pesticides from meat, milk and foods was made.
43. Water Bacteriology techniques were determined to study on water borne pathogens.
44. Standardization of Microscopical Agglutination Test (MAT) was made for Serodiagnosis of Leptospirosis, both in man and animals.
45. Established and standardized Ultrasonography studies on canine for different urogenital and hepatic disorder.
46. Surgical procedure has been standardized for cataract surgery in dogs by highly sophisticated phacoemulsification technique.
47. Standardization made on anaesthetic regimen for anaesthetization of ruminants by sub arachinoid anaesthesia.
48. Developed the technique of operation for Urolithiasis of dog in field condition.
49. Use of ceramic bone grafts and bioceramic based drug delivery system has been established for treatment of osteomyelitis in animal.
50. A six-seam semi-pelagic trawl net with a head-rope length of 30.3 m was designed for pomfret fishery.
51. Developed a new Economic Growth Model for the sustainable upliftment of the socio-economic condition of the fisher folk at Purba Medinipur district of West Bengal.
52. Processing technologies of different food and fish products and its preservation have been evolved.
53. A model has been established for sustainable rearing of backyard poultry in different climatic corners of the State.
54. A life attenuated and inactivated vaccine from locally isolated pigeon and broiler paramyxovirus (PMV-1) has been developed for saving the vast poultry resources in the State.
55. Procedures for preparing good quality rasogolla, sandesh and pantoora from buffalo milk and phirni from cow milk were standardized.
56. Procedure for making a ready-to-reconstitute phirni mix powder was developed.





57. Incorporation of 20mm square mesh at the cod end along with the fabrication of EWMBN for selective fishing.
  58. Development and fabrication of square meshes technology for selective fishing.
  59. Utilization of Agro Industrial by products like Karanja Cake, Sal seed Cake, Mustard Oil Cake, Water Hyacinth, Distillers dried grain, Slaughter house waste as live-stock feed.
  60. Commercial production of Region specific Mineral Mixture.
  61. Sustainable Duck Production in natural foraging system.
  62. Development of Pure line White Ducks for Egg production to Support Shuttle Cock Feather Industry.
  63. Use of Emulsifier to improve the digestibility of high energy broiler diets.
  64. Use of Organic Trace Mineral to improve the productivity in different categories of animals.
  65. Use of Concentrate feeding system in Urban & Peri-Urban system of milk production.
  66. Utilization of different Yeast products as an alternative to Antibiotic Growth Promoter in Broiler Chicken.
  67. Use of Organic Acids as an alternative to Antibiotic Growth Promoter in Poultry & Pigs.
  68. Antibody-ELISA based technique for early diagnosis of caprine oesophagostomosis.
  69. Copro-antigen detection ELISA for early diagnosis of caprine oesophagostomosis.
  70. Productivity enhancement in goat and sheep by tactical use of anthelmintic medication.
  71. Bioclimatograph as a tool for forecasting economically significant level of gastrointestinal parasitism in ruminant livestock.
  72. Identification of anticoccidial biomolecules of a marine snail.
  73. Developed live attenuated lentogenic strain Ranikhet Disease vaccine from local isolate of RDV.
  74. Developed modified/purified F strain and R2B strain vaccines from commercial available vaccine.
  75. Development of a new method to preserve caprine cauda epididymal spermatozoa in-situ at -10 °C.
  76. Development of a new method to preserve caprine cauda epididymal spermatozoa in-field condition at -20°C.
-





Seminar on Urban Water Resource Management organised by Aquatic Environment Management Department at Belgachia, Kolkata



Conferment of Honorarium on Dr. S. Ayyappan, Secretary, DARE & DG, ICAR in 7th Convocation of the University



Dignitaries on the dais in the 7th Convocation of the University



University & DST, Govt. of West Bengal Officials visiting field for Integrated farming at Sagardwip, Sunderban



Dr. M. Chander, Head, Division of Extension Education, IVRI and the recipient of Bharat Ratna delivered lecture on innovations in teaching in the dept. of VAHEE





Carp Hatchery at Fishery Farm Complex in the Faculty of Fishery Sciences



Departmental Laboratory in the Deptt. of Dairy Chemistry



Fishery Students' exposure visit for Aquacultural Engineering course at field level



Ghoongroo Pig at Mohanpur Farm, Nadia



Students in the Laboratory at Faculty of Dairy Technology

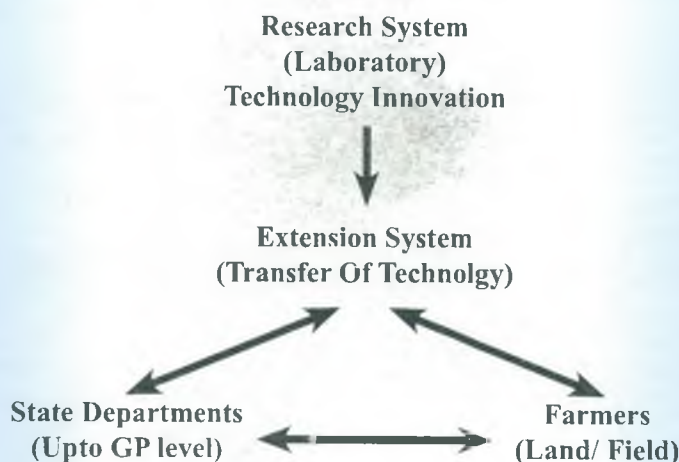




## E

## EXTENSION ACTIVITIES

The aim of Extension activity is to increase the productivity of the animal and fishery sectors along with more and more employment and income generation. On the other side, it provides need-based feed back to influence the research, education and training module set up for development of technologies. Such education also enforces the act of transferring innovative ideas through proper education of the concerned personnel so that they are properly trained and the skills are acquired for conviction, action and adoption. An emphasis has been given to farmers' participation while organization of such extension programmes in the country. This system operates as a farmers' programme with the presence of scientists and extension educationists, along with the support and initiative of the Government and non-government organisations. The extension system has to deal with socio-economically weak farming community, which is large in size, with either small or no landholdings and thus, massive in demand.



### E.1. EXTENSION EDUCATION

Directorate of Research, Extension & Farms through its Extension wing functions with the objective of planning and execution of all the extension activities of the University in close consultation and cooperation of the Deans of the three faculties. It collaborates and coordinates the research findings and outreach programmes with the State Govt. Department of Animal Resource Development, Fishery Development and other Governmental and Non-Governmental agencies. It organizes various sorts of training programmes and refresher courses at regular intervals. It publishes periodicals, newsletters, research highlights, leaflet, booklets etc. to create awareness amongst the farmers on latest improvements in the field of Veterinary, Dairy and Fishery Sciences. The Directorate also organizes awareness camps, produces documentary films, technology demonstration fairs and exhibitions, radio and TV shows at frequent intervals. It also organizes different types of programs with the aim of effective dissemination of technologies evolved in the University to the rural mass. The Directorate also guides and supervises the activities of the different KVKs under it. Moreover, it monitors the extension of knowledge and information about the activities of the University through the use of print media and web media.





## E.2. VARIOUS TRAINING PROGRAMMES ORGANISED UNDER THE DIRECTORATE OF RESEARCH, EXTENSION AND FARMS

### Details of training programmes conducted under DREF in the year 2011

Sl. No	Period	Title of the Training Course	Sponsoring agency	Details about trainees (participants)							
				SC	ST	OBC	Gen.	Muslim	Male	Female	Total
1	Jan 17-21	Poultry & duck rearing	DRDC, N. 24 Pgs	46	0	9	17	0	10	62	72
2	Feb, 21-25	Pig rearing	DRDC, N. 24 Pgs	12	56	0	0	0	0	68	58
3	Feb 28-March 4	Fish farming	DRDC, N. 24 Pgs	10	0	10	7	17	30	14	44
4	March, 14-18	Poultry & duck rearing	DRDC, N. 24 Pgs	8	4	0	2	18	1	31	32
5	March, 21-25	Fish farming	DRDC, N. 24 Pgs	41	16	2	0	4	8	55	63
6	March, 28-April, 1	Goat rearing	DRDC, N. 24 Pgs	39	3	4	7	14	10	57	67
7	April, 4-8	Pig rearing	DRDC, N. 24 Pgs	8	46	1	1	0	2	54	56
8	June, 20-24	Poultry & Duck rearing	DRDC, N. 24 Pgs	29	8	5	4	0	1	45	46
9	July, 15-17	Use of ICT in Animal Resource Management	MANAGE, Hyderabad	-	-	-	-	-	-	-	30
10	July, 18-22	Goat rearing	DRDC, N. 24 Pgs	43	0	0	2	0	2	43	45
11	July, 19-23	Goat rearing	DRDC, N. 24 Pgs	23	0	17	2	0	0	42	42
12	August, 1-5	Fishery	DRDC, N. 24 Pgs	19	4	1	1	5	0	30	30
13	August, 23-27	Goat rearing	DRDC, N. 24 Pgs	39	5	0	5	0	0	49	49
14	Sept, 5-9	Poultry & Duck rearing	DRDC, N. 24 Pgs	38	9	0	10	3	13	47	60
15	Sept., 19-23	Poultry & Duck rearing	DRDC, N. 24 Pgs	49	1	0	1	0	0	51	51
16	Dec, 13-14	Impact evaluation cum Refresher Trg.	DRDC, N. 24 Pgs	11	6	5	7	18	7	40	47
<b>Total</b>											<b>802</b>



### Details of training programmes conducted under DREF in the year 2012

Sl No.	Period	Title of the Training Course	Sponsoring agency	No. of trainees (participants)
1	February, 07	Industry meet cum Butchers'	NMPPB, MoFPI, GOI	100
2	May, 19	Cottage level food processing entrepreneurship development for farmers for Kolkata district	IICPT, MoFPI, GOI	70
3	June, 07	Industry meet cum Butchers' training for Murshidabad district	NMPPB, MoFPI, GOI	100
4	September, 29	Cottage level food processing entrepreneurship development for farmers for Nadia district	IICPT, MoFPI, GOI	75
5	September, 30	Cottage level food processing entrepreneurship development for farmers for Kolkata district	IICPT, MoFPI, GOI	75
<b>Total</b>				<b>520</b>

### E.3. CONSULTANCY CELL AND ADVISORY SERVICES

The Extension wing of the Directorate of Research, Extension and Farms provides Consultancy and Farm Advisory services to the stakeholders in the fields of livestock farming, dairy product processing and fish farming. Faculty members and officials/scientists of the University render their expertise through field visits, farm or home visits, face-to-face discussions, over telephone, e-mails and postal communications. During 2011-2012 a total number of 22, 677 persons were rendered technical advises through this Directorate. The Extension wing also provides consultancy on animal husbandry, dairy technology and fishery related laboratory and field services. A total of 12 Consultancies for establishment of livestock, dairy and fishery farms as well as other animal origin food products processing projects / schemes were provided during 2011-2012 through the Consultancy Cell. Such consultancies were provided to the clientele through the Individual or group consultants from the University. In addition, need based training and distribution of extension literature to the beneficiaries is being made during such Advisory and Consultancy services.

### E.4. DOCUMENTARY FILMS PRODUCED

Six numbers of Documentary Video film have been produced by WBUAFS till date.

Sl.No.	Title	Subject	Language
1.	<b>Gabadi</b>	Cattle husbandry	Bengali
2.	<b>Garoler golpo</b>	Garole sheep husbandry	Bengali
3.	<b>Chhagoler golpo</b>	Bengal goat husbandry	Bengali
4.	<b>Hangsomin</b>	Integrated farming of duck cum fishery	Bengali
5.	<b>Choroibeti</b>	Institution Village Linkage Programme	Bengali
6.	<b>Ghoongroo</b>	Ghoongroo pig production through Centrally sponsored scheme on Threatened breed – Ghoongroo pig	Bengali





Copies of these documentaries are available for sale through the Extension wing of the Directorate of Research, Extension & Farms.

#### **E.5. PARTICIPATION IN MELA (FAIR) / EXHIBITION**

##### **Organization of Mela :**

- |   |      |
|---|------|
| ❖ Technology Week cum Krishi Mela organized by Murshidabad Krishi Vigyan Kendra at Murshidabad KVK.                   | 2012 |
| ❖ Saheli Mela organized by Cheminova India Ltd. at Pabdhara, Gadamarahat, N. 24 Parganas.                             | 2012 |
| ❖ Krishi Mela organized by Chaltaberia Adarsha Krishak Sangha with NABARD at Chaltaberia, Duttapukur, N. 24 Parganas. | 2012 |
| ❖ Paschim Banga Poultry Mela-1012 organized by West Bengal Poultry Federation at Milan Mela Prangan, Kolkata.         | 2012 |
| ❖ 24th Krishi Shilpa 'O' Banijya Mela organized by Agragami Handicapped Samity at Bajkul, Purba Medinipur.            |      |

#### **E.6. ORGANIZATION OF ANIMAL / FISH HEALTH CAMPS**

The West Bengal University of Animal & Fishery Sciences is working with the social mandate for the rural poor people of the State. The Directorate of Research, Extension and Farms takes the lead role in giving extension services to the farming community residing at remote villages, where conventional aid systems are yet to receive. Some of the teaching departments of the Veterinary and Animal Sciences faculty alongwith the Extension wing of the Directorate of Research, Extension and Farms regularly organizes treatment camps or vaccination camps free of cost against major livestock diseases at different corners of the State. During the reporting period, a total of nearly 17 animal health camps have been organized throughout the State.

In the similar fashion, the faculty of Fishery Sciences also organizes fish health camps and extends free of cost advisory services to the practicing fishermen inhabiting at different remote areas of the State.

#### **E.7. WOMEN EMPOWERMENT**

In the Indian households, it is an established fact that the majority of the activities of livestock keeping are carried out by the women. The same is also applicable for indigenous dairy product preparation and to a greater extent in case of fishery operations. The State has some thrust area of activities for the social upliftment of the rural women. The University from its initiation is working for the improvement of the womenfolk through the development of their socio-economic status. The University is consistently trying for the betterment of the farming women through organization of skill development training programmes, sensitization camps, capacity building and awareness for the self-help groups. The Krishi Vigyan Kendras at Murshidabad, North Parganas and Jalpaiguri districts under the University are also organizing specific women empowerment and drudgery reduction programmes at regular intervals throughout the year.

#### **E.8. PUBLICATIONS**

The publication of newsletters, extension literature like leaflets, booklets, pamphlets, handouts etc. are published and updated regularly by the Extension wing of Directorate of Research, Extension & Farms. The



Directorate also monitors publication of research papers and scientific popular articles in different print, electronic and web media as released by the faculty members, scientists and officials. Various reports on research findings, practical class manuals, training programme compendiums are also being prepared under the active supervision of the Directorate of Research, extension and Farms in the University. The extension literatures are distributed amongst the stakeholders through the Extension wing of the Directorate.

### E.8.1. BRIEF ABOUT PUBLICATION OF ACADEMIC, SCIENTIFIC AND EXTENSION LITERATURES

1. WBUAFS Newsletter	1 No.
2. University Annual Report	1 No.
3. Research Project Annual Reports	65 Nos.
4. Faculty at a Glance	2 Nos.
5. University at a Glance	2 Nos.
6. Research Highlights	1 No.
7. Status of KVKs under WBUAFS	3 Nos.
8. Monograph of VCI Course	5 Nos.
9. Course Practical Manuals	16 Nos.
10. Laboratory Manuals	4 Nos.
11. Text Books and other Books	11 Nos.
12. Extension Book/Booklets in Bengali	10 Nos.
13. Leaflets in Bengali	8 Nos.
14. Compendium of Training Programmes	17 Nos.
15. Package of Practices	3 Nos.
16. WBUAFS – Vision 2030	1 No.

### E.9. ACTIVITIES OF KRISHI VIGYAN KENDRAS

#### E.9. 1. KRISHI VIGYAN KENDRA, JALPAIGURI

##### 1. Abstract of different Training programmes conducted during the reporting period:

##### A. FOR THE PRACTICING FARMERS / FARM WOMEN

Discipline	No. of Training Courses		No. of participants											
	On-campus	Off-campus	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T

2010 - 2011

Agronomy	15	7	193	161	354	13	19	32	35	16	51	241	196	437
----------	----	---	-----	-----	-----	----	----	----	----	----	----	-----	-----	-----





2010 - 2011

Horticulture	36	5	212	100	312	39	11	50	68	8	76	319	119	438
Animal Science	7	-	8	46	54	-	3	3	14	20	34	22	69	91
Home Science	7	7	-	224	224	-	33	33	-	27	27	-	284	284

2011-2012

Agronomy	12	7	154	164	318	28	13	41	16	20	36	198	184	382
Animal Science	6	-	80	21	101	9	-	9	31	24	55	120	45	165
Home Science	8	-	-	265	265	-	49	49	-	76	76	-	390	390
<b>Total:</b>	<b>91</b>	<b>7</b>	<b>647</b>	<b>981</b>	<b>1628</b>	<b>89</b>	<b>128</b>	<b>217</b>	<b>164</b>	<b>191</b>	<b>355</b>	<b>900</b>	<b>1287</b>	<b>2187</b>

**B. FOR THE RURAL YOUTH**

Discipline	No. of Training Courses		No. of participants											
	On-campus	Off-campus	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T

2010 - 2011

Agronomy	12	-	51	3	54	6	-	6	20	-	20	77	3	80
Horticulture	1	15	-	15	1	-	1	4	-	4	-	20	-	20

2011-2012

Agronomy	1	-	15	-	15	-	-	-	1	-	1	16	-	16
Horticulture	1	-	17	-	17	-	-	-	-	-	-	17	-	17
<b>Total:</b>	<b>15</b>	<b>-</b>	<b>98</b>	<b>-</b>	<b>101</b>	<b>7</b>	<b>-</b>	<b>7</b>	<b>25</b>	<b>-</b>	<b>25</b>	<b>130</b>	<b>3</b>	<b>133</b>

**C. FOR THE EXTENSION PERSONNEL**

Discipline	No. of Training Courses		No. of participants											
	On-campus	Off-campus	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T

**2010 - 2011**

Agronomy	3	-	44	-	44	-	-	-	6	-	6	50	-	50
Horticulture	1	-	12	-	12	-	-	-	3	-	3	15	-	15

**2011-2012**

Agronomy	2	-	32	-	32	-	-	-	6	2	8	38	-	38
<b>Total:</b>	<b>6</b>	<b>-</b>	<b>88</b>	<b>-</b>	<b>88</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15</b>	<b>2</b>	<b>17</b>	<b>103</b>	<b>-</b>	<b>103</b>

**D. FOR THE OTHERS (2010-11)**

Discipline	No. of Training Courses		No. of participants											
	On-campus	Off-campus	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T
Horticulture	1	-	22	1	23	-	-	-	5	-	5	27	1	28
<b>Total</b>	<b>1</b>	<b>-</b>	<b>22</b>	<b>1</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5</b>	<b>-</b>	<b>5</b>	<b>27</b>	<b>1</b>	<b>28</b>

**VOCATIONAL TRAINING PROGRAMME (2010-11) :**

Discipline	No. of Training Courses		No. of participants											
	On-campus	Off-campus	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T
Horticulture	1	-	22	1	23	-	-	-	5	-	5	27	1	28
<b>Total:</b>	<b>1</b>	<b>-</b>	<b>22</b>	<b>1</b>	<b>23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5</b>	<b>-</b>	<b>5</b>	<b>27</b>	<b>1</b>	<b>28</b>

**2. Abstract of Frontline demonstrations conducted during 2010-2011:**

Discipline	No. of FLDs		No. of participants											
	Initiated (No./ha)	Completed (No. /ha)	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T
Agronomy	4	3	30	4	34	2	1	3	12	1	13	42	8	50
Horticulture	3	3	34	2	36	2	1	3	16	3	19	54	4	58
<b>Total</b>	<b>7</b>	<b>6</b>	<b>64</b>	<b>6</b>	<b>70</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>28</b>	<b>4</b>	<b>32</b>	<b>96</b>	<b>12</b>	<b>108</b>



**3. (a) Abstract of On-farm trial/testing conducted during 2010-2011**

Discipline	No. of OFTs		No. of participants											
	Initiated (No./ha)	Completed (No. /ha)	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T
Agronomy	1	1	18	2	20	-	-	-	6	-	6	24	2	26
Horticulture	2	2	15	2	17	-	-	-	3	-	3	18	2	20
Home Science	1	1	-	14	14	-	-	-	-	-	-	-	14	14
Animal Science	1	1	10	-	10	-	-	-	-	-	-	10	-	10
<b>Total</b>	<b>5</b>	<b>5</b>	<b>43</b>	<b>18</b>	<b>61</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>9</b>	<b>-</b>	<b>9</b>	<b>52</b>	<b>18</b>	<b>70</b>

**(b) Abstract of On-farm trial/testing conducted during 2011-2012**

Agronomy	2	2	18	2	20	-	-	-	6	-	6	24	2	26
Home Science	1	1	10	-	10	-	-	-	-	-	-	10	-	10
Animal Science	1	1	-	8	8	-	-	-	-	-	-	-	8	8
<b>Total</b>	<b>4</b>	<b>4</b>	<b>28</b>	<b>10</b>	<b>38</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6</b>	<b>-</b>	<b>6</b>	<b>34</b>	<b>10</b>	<b>44</b>

**4. Discipline-wise details of salient achievements through OFTs in during the period**
**2010 – 2011**

- OFT – 01 :** Efficacy of System of Rice Intensification (SRI) techniques in increasing the yield of Boro Rice.
- OFT- 02 :** Assessment of Integrated Disease Management of bacterial wilt in Chillil.
- OFT – 03 :** Assessment of Disease Management through eco-friendly chemical control of rhizome rot in Ginger.
- OFT – 04 :** Integration of pig and duck farming with fishery.
- OFT – 5 :** Efficacy of improve child health by providing protein calorie content supplementary food. KVK Jalpaiguri conducted an on farm trial to access the efficacy of improved child health. Mainly KVK adopted two villages are identified named “ Panbari Barman Para “ and Dakshin Kalamati. 14 nos. children were present with their mother. Most of the children are under weight their age group was 1 year to 3 years mainly they are suffering protein calorie malnutrition.



## **Discipline-wise salient achievements through OFTs in during the period 2011 – 2012:**

### **Details of On Farm Trial -1 :**

Efficacy of system of rice intensification (SRI) techniques in increasing the yield of boro rice in teesta flood plains of terai zone.

- 1) Final recommendation for micro level situation : SRI technology of boro rice cultivation produced higher yield than traditional method of rice cultivation. As this technology reduced the water requirement, cost of cultivation and also increases B:C ratio.
- 2) Constraints identified and feedback for research : Farmers hesitate to transplant rice seedling at the age of 10 days old.
- 3) Process of farmers participation and their reaction : Active participation of the farmers to make the trial success. Now they are happy with the results and ready to transplant 10 days old seedling for doing another On farm trial for comparison.

### **Details of On Farm Trial -2 :**

Assessment of integrated nutrient management on wheat in irrigated upland condition.

- 1) Problem diagnosed : Low productivity of wheat in irrigated upland condition.
- 2) Final recommendation for micro level situation : Combined use of organic, inorganic and biofertilizer source of nutrients produced highest yield than the inorganic source of nutrients.
- 3) Constraints identified and feedback for research : Azotobacter is not available at remote places.
- 4) Process of farmers participation and their reaction : Active participation of the farmers to make the trial success. Now they are happy with the results and ready to adopt the technology and next year this technology will be demonstrated in larger scale.

### **On Farm Trial – 03 :**

Assessment of scientific integration of piggery, duckery and fishery for eco-friendly management of piggery and duckery wastes and to increase the profit margin in fishery.

#### **Results :**

Integration of Piggery, Duckery & Fishery for eco friendly management of Piggery & Duckery waste and to increase to profit margin in fishery.

### **On Farm Trial – 04 :**

Assessment of scientific identification and manage of rural malnourished children in Ramshal area

#### **Result of OFT**

Technology assessed : Efficacy of improve child health by providing protein calorie content supplementary food. KVK Jalpaiguri conducted an on farm trial to access the efficacy of improved child health. Mainly KVK adopted two villages are identified named “ Panbari Barman Para “ and Dakshin Kalamati. 14 nos. children were present with their mother. Most of the children are under weight their age group was 1 year to 3 years mainly they are suffering protein calorie malnutrition .



**5. Abstract of other extension activities conducted during the reporting period:2011- 2012:**

Sl No	Activity	No. of activities organized	Duration	No. of beneficiaries											
				SC			ST			Others			TOTAL		
				M	W	T	M	W	T	M	W	T	M	W	T
1	Field Day	6	1	67	18	85	5	4	9	5	2	7	77	24	101
2	Kishan Goshthi	20	1	120	55				15	175	37	220	305	97	402
3	Exhibition	1	3	100			12	8	20	200	15	215	312	48	360
4	Film Show	6	1	212	26	278	18	10	28	66	42	108	296	80	376
5	Group Meeting	12	1	175	35	210	12	8	20	40	6	46	227	49	276
6	News Paper coverage	3	1	-	-	-	-	-	-	-	-	-	-	-	-
7	Radio Talk	6	1	-	-	-	-	-	-	-	-	-	-	-	-
8	TV talk	4	1	-	-	-	-	-	-	-	-	-	-	-	-
9	Popular Articles	2	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Advisory Service	78	1	23	5	28	2	1	3	41	6	47	66	12	78
11	Scientific visit to farmers field	30	1	56	6	62	5	4	9	27	3	30	89	12	101
12	Farmers visit to KVK	225	1	175	3	178	5	3	8	36	3	39	216	9	225
13	Ex-trainees Sammelan	1	1	27	-	27	-	-	-	16	4	20	43	4	47
14	Celebration of important days (specify)	3	1	235	24	259	20	9	29	15	22	27	270	55	325
	<b>Total:</b>	<b>397</b>	<b>15</b>	<b>1190</b>	<b>197</b>	<b>1427</b>	<b>89</b>	<b>52</b>	<b>141</b>	<b>621</b>	<b>140</b>	<b>759</b>	<b>1901</b>	<b>390</b>	<b>2291</b>



### 6. Linkage established with other organizations / line departments / Institutes in the district during the period

Sl. No.	Name of organization	Area (Activity) of linkage
1	District Rural Development Cell, Jalpaiguri.	Training
2.	Uttar Banga Krishi Viswavidyalaya	Technical support
3.	Jalpaiguri Zilla Parishad	Infrastructure & NREGA training
4.	National Horticulture Mission, Jal-	Area expansion under Horticultural Crops
5.	ATMA, Jalpaiguri Training and On Farm	
6.	Central Plantation Crop Research Institute, Mohitnagar, Jalpaiguri.	Technical support
7.	Animal Resource development Dept., Jalpaiguri.	Joint Diagnostic and Technical Support.
8.	NABARD WADI area expansion work	
9.	Backward Classes Welfare Dept	Training
10.	Zilla Parishad, Jalpaiguri	Training
11.	Agriculture Department, Jalpaiguri	Demonstration
12.	Department of Forests, Jalpaiguri	Training
13.	Central Board for Workers Education, Govt. of India	Training
14.	Dooars' Jagaran, NGO, Banarhat, Jalpaiguri	Training in the Forest Banabasty

### 7. Details of outside fund received for the sponsored projects / training / seminar etc.:

Name of the Activity (Project / training / seminar / camp etc.)	Name of the sponsoring organization/ line department / Institute	Total fund allocation (Released)	Duration (from - to)
WADI scheme for popularization of fruit orchards and Establishment of piggery unit under non wadi component	NABARD	83.0 Lakhs	2009-10 to 2011-12

### 8. Achievement in seed production: 2010 - 11

Sl.	Name of Crop./ Livestock spp.	Variety / Breed	Area (ha) / No.		Fund generated
			Production	Distribution	
1	Wheat	PBW-343	-	On	Standing crops
2	Mustard	B - 9 & JHUMKA	-		Harvesting stage
3	Nizer	Birsa Nizer - I	-		Harvesting stage





4	Lentil	Harvesting stage	-	On	18,000
5	Elephant Foot Yam	Kavur	6		1,500
6	Turmeric	Prabha	0.5		7,500
7	Colocasia	Panchamukhi	3		-
8	Vegetables		9.5		27,000

Sl. No.	Type of	Breed Animal	Type of Produce	Quantity (No. / Kg )	Value (Rs.)	No.of Farmers Provided
1.	Sheep Unit	Bonpale	Meat	10 Nos.	10,000/-	06

### 9. Achievement in seed production: 2011 – 12

Sl.No.	Name of Crop/ Livestock spp.	Variety / Breed	Area (ha) / No.		Fund generated
			Production	Distribution	
1	Mustard	B – 9 & JHUMKA	2	On	3000=00
2	Nizer	Birsa Nizer - I	1		1500=00
3	Sesame		1.32		2640=00
4	Elephant Foot Yam	Kavur	2		4,000=00
5	Turmeric	Prabha	1.28		1280=00
6	Colocasia	Panchamukhi	6		12000=00

### A. CROP PRODUCTION AT KVK FARM :

Crop	variety	Quantity of seed (q)	Value (Rs)
<b>Oilseeds</b>			
Mustard	B – 9 & JHUMKA	2	4000=00
Nizer	Birsa Nizer - I	1	1500=00
Sesame		1.32	2640=00
<b>Vegetables</b>			
Elephant Foot Yam	Kavur	2	4,000=00



Colocasia	Panchamukhi	6	12000=00
	Mukhi Kachu	2	4000=00
Brinjal		2	1000=00
Potato	Khufri (Jyoti)	59.85	22743=00
Pea		270 kg.	3240=00
Chinese Cabbage		2	730=00
Bottle Gourd	Lato 123	857 pcs.	4453=00
<b>Spices</b>			
Chilli		5.12	12178=00
Turmeric	Prabha	1.28	1280=00
<b>Fiber crops</b>			
MESTA (Jute)		15 qut. + Seed 50 kg	18750=00+5000=00

## B. LIVESTOCK

Sl. No.	Type of Animal	Breed	Type of Produce	Quantity (No. / Kg )
1.	Sheep Unit	Bonpala	Meat	225Nos.
2.	Poultry	RIR	Egg	220 NOS.

## 10. Major achievements / Success story during 2010-11 & 2011-12 :

### A. GHOONGROO PIG PRODUCTION FOR SELF-EMPLOYMENT:

Self-employment through pig rearing is gradually becoming popular among the tribal people and un-employed educated rural youth as a profitable vocation in the Jalpaiguri district. For successful implementation of different livestock enterprises, the new technology must be integrated with the indigenous knowledge and practices of livestock owners & farmers, which can be best achieved through practical & vocational training courses. Based on this thrust area Ramshai KVK organizes long term vocational training programmes on "Ghoongroo pig production as a profitable enterprise for un-employed rural youth".

The farmers of this area who have participated in the piggery training programme already started their own piggery farm. They took the challenge to earn more what they learnt from Ramshai KVK by seeing is believing and doing by learning. The Subject Matter Specialist from Ramshai KVK also visited their farm in a regular interval to boost up their spirit and to provide necessary advice.

#### Key points of the success story

- Total Nos. of Training Programmes conducted (during the last 6 yrs.) : 36
- Total Nos. of Beneficiaries participated (during the last 6 yrs.) : 1260





➤ Total Nos. of Self-Employments	:	720
Adoption (%) of Ghoongroo Pig Production	:	55%
➤ Income / Family / Month with a unit of 5 breeding stock		Rs.3000/- per month
➤ Mandays generated / Unit / Year	:	194
➤ The Cost - Income Ratio in Pig Farming	:	1:1.8

## **B. CULTIVATION OF ELEPHANT FOOT YAM(OL) FOR INCOME GENERATION;**

Jalpaiguri distinct with its conducive agro-climatic condition offers a vast potential for development of horticultural crops, specially, Elephant Foot Yam. Based on the thrust area analyzed through PRA conducted in the village level, Ramshai KVK organizes long term vocational training programme on "Skill development training on agro techniques for producing different horticultural crops". Elephant Foot Yam helps farmers to earn more income per unit area, enhance productivity per unit area, and generate more employment opportunity.

For successful implementation of the training programme organized by Krishi Vigyan Kendra, a special venture has been taken to implement the scheme at the potential pocket of the district, 6 nos blocks viz. Maynaguri, Dhupguri, Jalpaiguri Sadar, Malbazar, Matiali and Rajganj are selected for implementation of the scheme according to the suitability of the crop production.

Beneficiaries for the scheme are selected by the KVK personnel keeping close contact with the rural leaders, belonging to below poverty line (BPL), mostly under backward classes. Individual beneficiaries having experience in cultivation practices are given preference. Potential villages having suitable land situation and textual classes of soil are considered. Firstly KVK personnel demonstrated the Elephant Foot Yam (OL) cultivation in the instructional farm profitably where similar soil condition and land situation and weaker condition prevails. So, this scheme was formulated and implemented in their fields. Under this scheme seed material, fertilizer and plant protection chemicals required for  $\frac{1}{2}$  bigha land was provided to each farmers. They were motivated to cultivate the Elephant Foot Yam, through the training programme organized at the Krishi Vigyan Kendra by following the learning by doing method. At the end of the scheme farmers produced. In an average 60 qntl. Per bigha Elephant Foot Yam was produced by individual farmer, which costs Rs. 48,000=00 ( @ 800=00 per quintal). The farmers are interested to continue Elephant Foot Yam cultivation for coming year.

### **Key points of the success story**

➤ Total no. of training programme conducted	:	62
➤ Total no.of beneficiary participated	:	2372
➤ Total Nos. of Self-Employments	:	1410
➤ Adoption (%) of EFY cultivation	:	60%
➤ Area under cultivation	:	70.4 ha.
➤ Total cost for demonstration scheme	:	60.18 lakhs
➤ Total cost of training programme	:	5.20 Lakhs
➤ Cost benefit ratio	:	1 : 2 . 2
➤ No. of mandays generated	:	17952



### 11. Activities in the Instructional Farm (enterprise-wise) with resource/fund generation: 2010-11

Sl. No.	Type of Animal	Breed	Type of Produce	Quantity (No. / Kg.)	Value (Rs.)	No. of Farmers Provided
1	Sheep Unit	Bonpala	Meat	10Nos.	10,000/-	05

### Performance of demonstration units 2011-2012

Sl. No.	Type of Animal	Breed	Type of Produce	Quantity (No. / Kg.)	Value (Rs.)	No. of Farmers Provided
1.	Piggery Unit	Ghoongroo	Piglets	142 Nos.	1,90,300/-	45
2.	Sheep Unit	Bonpala	Meat	18 Nos.	18,000/-	06
3.	Poultry	RIR	Egg	260 nos.		-

### Performance of instructional farm (Crops)

Crop	Variety	Quantity of seed (q)	Value (Rs)
<b>Oilseeds</b>			
Mustard	B - 9 & JHUMKA	2	4000=00
Nizer	Birsa Nizer - I	1	1500=00
Sesame		1.32	2640=00
<b>Vegetables</b>			
Elephant Foot Yam	Kavur	2	4,000=00
Colocasia	Panchamukhi	6	12000=00
	Mukhi Kachu	2	4000=00
Brinjal		2	1000=00
Potato	Khufri (Jyoti)	59.85	22743=00
Pea		270 kg.	3240=00
Chinese Cabbage		2	730=00
Bottle Gourd	Lattoo 123	857 pcs.	4453=00
<b>Spices</b>			
Chilli		5.12	12178=00
Turmeric	Prabha	1.28	1280=00
<b>Fiber crops</b>			
MESTA (Jute)		15 qut. + Seed 50 kg	18750=00+5000=00



**E.9. 2. KRISHI VIGYAN KENDRA, NORTH 24 PARGANAS**
**1. Abstract of different Training programmes conducted during 2010-11 & 2011-12:**
**A. FOR THE PRACTICING FARMERS / FARM WOMEN**

Discipline	No. of Training Courses		No. of participants											
	On-campus	Off-campus	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T
Crop Production	19	25	165	40	205	31	9	40	938	82	1020	1134	131	1265
Horticulture	14	21	125	35	160	29	13	42	765	75	840	919	123	1042
Livestock enterprise	3	4	26	6	32	6	0	6	201	21	222	233	27	260
Fishery	7	10	78	30	108	23	9	32	320	42	362	421	81	502

**B. FOR THE RURAL YOUTH**

Discipline	No. of Training Courses		No. of participants											
	On-campus	Off-campus	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T
Horticulture	3		9	2	11	2	0	2	40	7	47	51	9	60

**2. Abstract of Frontline demonstrations conducted during 2010-11 & 2011-12:**

Discipline	No. of FLDs		No. of participants											
	Initiated (No./ha)	Completed (No./ha)	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T
Crop production	8	8	39	3	42	12	2	14	254	19	273	305	24	329
Horticulture	4	4	6	2	8	3	1	4	17	4	21	26	7	33
Fishery	4	4	5	1	6	4	0	4	15	6	21	24	7	31



### 3. Abstract of On-farm trial/testing conducted during 2010-11 & 2011-12.

Discipline	No. of QFT		No. of participants											
	Initiated (No./ha)	Completed (No. /ha)	SC			ST			Others			TOTAL		
			M	W	T	M	W	T	M	W	T	M	W	T
Crop production	4	4	7	1	8	4	0	4	14	2	16	25	3	28
Horticulture	4	4	7	2	9	3	1	4	15	3	18	25	6	31
Fishery	3	3	5	1	6	3	0	3	10	2	12	18	3	21

### 4. Discipline-wise salient achievements through OFT in 2010-11 & 2011-12:

#### Horticulture:

**OFT 1** : Performance of different measures of chemical control technology against coconut mite

**OFT 2** : Bunch cover with low cost polythene against scaring beetle.

#### Crop production:

**OFT3** : To assess the yield increase in boro paddy through SRI technique by using existing HYV paddy variety and plant protection measures

**OFT 4** : To assess the effect of balanced nutrition on yield of aman paddy under rainfed medium to medium low land situation.

**OFT 5** : To assess the productivity and economic sustainability of composite fish farming through protein balancing in supplementary feed.

### 5. Abstract of other extension activities conducted during the reporting period:

S.N	Activity	No. of activities organized	No. of beneficiaries
			T
1	Field day	49	49
2	Kishan Mela	6	6
3	Scientist visit to farmers field	280	280
4	Farmers visit KVK	763	763
5	Advisory Enquiry/Help line service	890	890
6	Diagnostic service	174	174
7	Clinic days	4	4
8	Farmers science club	8	8
9	Extension Literature Dev. & distributed	9	9
10	News paper/Radio/TV coverage(No.)	2	2
11	* Exposures visit. No. of Programme	2	2
	<b>Total</b>	<b>2187</b>	<b>2187</b>



**6. Linkage established with other organizations / line departments / Institutes in the district.**

Name of organization	Area of linkage
ATMA	<ul style="list-style-type: none"> <li>Governing body and management committee member</li> <li>Fund released for Strategic Research &amp; Extension Plan (SREP)</li> </ul>
RKVY	<ul style="list-style-type: none"> <li>Governing body and management committee member</li> <li>Bio-village programme started</li> </ul>
State Seed Corporation,	<ul style="list-style-type: none"> <li>Foundation and certified seed etc.</li> </ul>
Department of Fisheries, Govt. of W.B	<ul style="list-style-type: none"> <li>Awareness camp on subsidized loan scheme,</li> </ul>
Bidhan Chandra Krishi Viswavidyalaya, Mohanpur	<ul style="list-style-type: none"> <li>Time to time planning execution</li> <li>Planting material collection</li> <li>Bio fertilizers collection</li> <li>Resource persons</li> </ul>
State Department of Agriculture	<ul style="list-style-type: none"> <li>Time to time planning execution</li> </ul>
Regional Station for Forage Production Demonstration, Kalyani	<ul style="list-style-type: none"> <li>Demonstration, Training and fodder seed collection</li> </ul>
NREGS	<ul style="list-style-type: none"> <li>Linkage in pipeline</li> </ul>
State Department of Horticulture	<ul style="list-style-type: none"> <li>Time to time planning execution</li> <li>Preparation of demonstration unit under planning stage</li> </ul>

**7. Details of outside fund received for the sponsored projects / training / seminar etc.:**

Name of the Activity (Project / training / seminar / camp etc.)	Name of the sponsoring organization/ line department / Institute	Total fund allocation	Duration (from – to)
Strategic Research & Extension Plan (SREP)	ATMA	1,50,000	2008-12
Bio-village programme	RKVY	70,000	2010-11
Protected cultivation	RKVY	12,00,000	2010-11

**8. Achievement in seed production:**

Sl.No.	Name of Crop/ Livestock spp.	Variety / Breed	Area (ha) / No.		On/Off- farm	Fund generated
			Production	Distribution		
1	Paddy seed	Var. IET 4786 (Shatabdi)	2.25 ha/70		On	51,000
2	Mango	Amrapali	400		On	



## Major achievements / Success story (Discipline-wise and point-wise):

### Livestock enterprise:

“Vaccination against PPR to prevent mortality in goats in the district of North 24 Parganas”

#### Background about case or problem

In every year after winter season huge number of goats around Habra-II block used to die after suffering from fever, respiratory problem followed by diarrhoea and dehydration. The scientists of the KVK, diagnosed the problem as PPR (Peste des Petits Ruminants).

#### Technology/process which was intervened for its success

- Vaccination was conducted in five villages of North 24 Parganas ( Mena North & South, Daulatpur, Koalipota and Bagpara) on December, 2007
- The lyophilized vaccine vial was reconstituted in 100 ml chilled normal saline and 1 ml dose was injected subcutaneously in goats.
- Three hundred (300) goats were vaccinated including kids above 3 months of age and pregnant does.
- All the vaccinated goats were given neck tag as an identification mark.

#### Effect of the technology/process

- There was no adverse reaction recorded after vaccination.
- None of the vaccinated goats were died till December, 2009 nor even showed any major respiratory or gastrointestinal disorders.
- The mortality (percentage of goats died out of total goat population) and case-fatality rate (percentage of goat died out of total goats affected) in 2008 were 11.9 % and 61.73 % and in 2009 were 13.04 % and 58.82 % respectively in goats of those villages which were suffering from said problems.
- The farmers whose goats were vaccinated were satisfied with the vaccination process.

## 10. Activities in the Instructional Farm (enterprise-wise) with resource/fund generation:

Sl.No.	Name of Crop/ Livestock spp.	Variety / Breed	Area (ha) / No.		On/Off-farm	Fund generated
			Production	Distribution		
1	Paddy seed	var. IET 4786 (Shatabdi)	2.25 ha / 70		On	51,000
2	Mango	Amrapali	400 No		On	-
3.	Sesame	IET 4786	1 ha		On	-
4	Elephant Foot yam	Bidhan Kushum	0.15ha		On	-
5.	Turmeric	Saguna	0.15ha		On	-
6.	Mango (HDY)	Amrapali	1.25ha		On	-
7.	Guava	Khaza/ Allahabad Safeda	0.5ha		On	-



**E.9. 3.KRISHI VIGYAN KENDRA, MURSHIDABAD****1. Abstract of different Training Programmes conducted by the Murshidabad, KVK during the period-April 2010 to March 2012.****A. FOR THE PRACTICING FARMERS / FARM WOMEN**

Discipline	No. of Training Courses		No. of participants												
	On-campus	Off-campus	SC			ST			Others			TOTAL			TOTAL
			M	W	T	M	W	T	M	W	T	M	W	T	
Horticulture	17	12	314	29	343	7	0	7	455	72	527	776	101	877	877
Soil Sciences	4	10	117	1	118	2	0	2	155	3	158	274	4	278	278
Fishery Sciences	16	7	177	4	181	0	0	0	229	35	264	406	39	445	445
Animal Sciences	1	4	12	0	12	9	2	11	63	24	87	84	26	110	110
<b>TOTAL</b>	<b>38</b>	<b>33</b>	<b>620</b>	<b>34</b>	<b>654</b>	<b>18</b>	<b>2</b>	<b>20</b>	<b>902</b>	<b>134</b>	<b>1036</b>	<b>1540</b>	<b>170</b>	<b>1710</b>	<b>1710</b>

**B. FOR THE RURAL YOUTH**

Discipline	No. of Training Courses		No. of participants												
	On-campus	Off-campus	SC			ST			Others			TOTAL			TOTAL
			M	W	T	M	W	T	M	W	T	M	W	T	
Horticulture	4	0	36	7	43	0	0	0	45	4	49	81	11	92	92
Soil Sciences	3	0	19	0	19	0	0	0	48	11	59	67	11	78	78
Fishery Sciences	1	0	0	0	0	0	0	0	25	9	34	25	9	34	34
Animal Sciences	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>9</b>	<b>0</b>	<b>55</b>	<b>7</b>	<b>62</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>118</b>	<b>24</b>	<b>142</b>	<b>173</b>	<b>31</b>	<b>204</b>	<b>204</b>

**C. FOR THE EXTENSION PERSONNEL**

Discipline	No. of Training Courses		No. of participants												
	On-campus	Off-campus	SC			SI			Others			TOTAL			TOTAL
			M	W	T	M	W	T	M	W	T	M	W	T	
Horticulture	1	0	8	0	8	0	0	0	32	0	32	40	0	40	40
Soil Sciences	0	1	28	0	28	0	0	0	13	0	13	41	0	41	41
Fishery Sciences	2	0	12	0	12	2	0	2	26	0	26	40	0	40	40
Animal Sciences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	1	48	7	48	2	0	2	71	0	71	121	0	121	121

**D. FOR THE OTHERS (Please mention)**

Discipline	No. of Training Courses		No. of participants												
	On-campus	Off-campus	SC			ST			Others			TOTAL			TOTAL
			M	W	T	M	W	T	M	W	T	M	W	T	
Horticulture KVK,MSD Sponsored by Indofil Industries Ltd.	1	0	1	3	4	0	0	0	30	30	60	31	33	64	64
Soil Sciences KVK,MSD Sponsored by Bayer Crop Science	1	0	13	0	13	0	0	0	24	0	24	37	0	37	37
Fishery Sciences KVK,MSD Sponsored by CIFA	1	0	18	0	18	0	0	0	10	2	12	28	2	30	30
Animal Sciences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	0	32	3	35	0	0	0	64	32	92	96	35	131	131



**2. Abstract of Front line demonstration conducted during 2010-11 and 2011-12:**

Discipline	No. of FLDs		No. of participants												
	Target (No./ha)	Completed (No./ha)	SC			ST			Others			TOTAL			TOTAL
			M	W	T	M	W	T	M	W	T	M	W	T	
Horticulture	No.-7 ha.-2.1	No.-7 ha.-3.26	35	5	40	0	0	0	48	3	51	83	8	91	91
Soil Sciences	No.-5 ha.-24.6	No.-5 ha.-27	62	5	67	0	0	0	117	1	118	179	6	185	185
Fishery Sciences	No.-1 Unit.-7	No.-2 Unit.-17	4	0	4	0	0	0	13	0	13	17	0	17	17
Animal Sciences	No.-0 ha.-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>No.-12 ha.-26.73</b>	<b>No.-12 ha.-30.26</b>	<b>101</b>	<b>10</b>	<b>111</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>178</b>	<b>4</b>	<b>182</b>	<b>279</b>	<b>14</b>	<b>293</b>	<b>293</b>

**3. Abstract of On-farm trial/testing conducted during 2010-11 and 2011-12:**

Discipline	No. of FLDs		No. of participants												
	Target (No./ha)	Completed (No./ha)	SC			ST			Others			TOTAL			TOTAL
			M	W	T	M	W	T	M	W	T	M	W	T	
Horticulture	No.-4 ha.-1.68 &	No.-4 ha.-1.75 & 32 Plants	20 32 Plants	0	20	0	0	0	20	0	20	40	0	40	40
Soil Sciences	No.-3 ha.-1.43	No.-3 ha.-1.43	11	0	11	0	0	0	9	0	9	20	0	20	20
Fishery	No.-1 ha.-0.13	No.-3 ha.-0.13	3	0	3	0	0	0	5	0	5	8	0	8	8
Animal Sciences	No.-0 ha.-0	No.-0 ha.-0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>No.-8 ha.-3.24 &amp; 32 Plants</b>	<b>No.-10 ha.-3.31 &amp; 32 Plants</b>	<b>34</b>	<b>0</b>	<b>34</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>34</b>	<b>0</b>	<b>34</b>	<b>68</b>	<b>0</b>	<b>68</b>	<b>68</b>



#### 4. Discipline-wise salient achievement through OFT:

**OFT 1:** Assessment of yield performance of Aman Paddy through System of Rice Intensification (SRI) techniques under rainfed medium land of new alluvial zone of Murshidabad district

**Recommendation :** Technology Option 2: SRI (Transplanting with 1 seedling per hill at 8-12 DAS at a spacing 25cm X 25cm considering recommended fertilizer dose 80:40:40)

**OFT – 2 :** Assessment the performance of sulphur application on mustard under Irrigated medium land of new alluvial zone of Murshidabad.

**Recommendation :** Technology option II is recommended for increase in the yield of Mustard in irrigated medium land condition in the new alluvial zone of Murshidabad District.

**OFT – 3 :** Assessment of Elephant Foot Yam with intercrops during Spring Summer season under irrigated medium land situation in the New Alluvial Region of Murshidabad district.

**Recommendation :** Improved Variety (Kovur) + Amaranthus (Jabakusum) is recommended for farmers of the new alluvial zone of Murshidabad District

**OFT – 4:** Evaluation of tolerant okra varieties during Kharif season under irrigated medium land situation in the Murshidabad district

**Recommendation :** Okra (Variety F 1 Hybrid) is recommended for farmers of the new alluvial zone of Murshidabad District.

#### 5. Abstract of other extension activities :

Sl No.	Activity	No. Of activities organized	Duration	No. of beneficiaries													
				SC			ST			Others			TOTAL			TOTAL	
				M	W	T	M	W	T	M	W	T	M	W	T		
1.	Field Day	4	Nov.10-11	53	2	55	0	0	0	45	1	46	98	3	101	101	
		1	March,10	8	0	8	0	0	0	12	0	12	20	0	20	20	
		1	Jan-12	7	0	7	0	0	0	31	0	31	38	0	38	38	
TOTAL		6	April,10-March,12	68	2	70	0	0	0	88	1	89	156	3	159	159	

Sl No.	Activity	No. Of activities organized	Duration	No. of beneficiaries													
				SC			ST			Others			TOTAL			TOTAL	
				M	W	T	M	W	T	M	W	T	M	W	T		
2.	Scientist visit to farmers field	2	April,10-11	5	0	5	0	0	0	19	0	19	29	0	29	29	
		3	May,10- 11	2	0	2	0	0	0	18	0	18	20	0	20	20	





# ANNUAL REPORT 2010-12

		4	June,10- 11	9	0	9	0	0	0	8	0	8	17	0	17	17
		4	July,10 -11	12	0	12	0	0	0	38	7	45	50	9	59	59
		5	August,10 11	39	0	39	0	0	0	8	0	8	47	0	47	47
		4	Sept,10 -11	4	0	4	0	0	0	14	0	14	18	0	18	18
		5	Oct,10-11	35	2	37	0	0	0	35	0	35	70	2	72	72
		10	Nov,10 -11	46	1	47	0	0	0	70	0	70	117	0	117	117
		7	Dec,10-11	39	0	39	0	0	0	27	2	29	66	2	68	68
		10	Jan,11 -12	51	0	51	1	0	1	67	27	94	119	27	146	146
		10	Feb,11-12	15	8	23	0	0	0	76	2	78	91	10	101	101
		8	March,11-12	39	3	42	0	0	0	33	17	50	72	20	92	92
	<b>TOTAL</b>	<b>72</b>	<b>April,10 - March,12</b>	<b>296</b>	<b>14</b>	<b>310</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>413</b>	<b>55</b>	<b>468</b>	<b>716</b>	<b>70</b>	<b>786</b>	<b>786</b>

Sl No.	Activity	No. Of activities organized	Duration	No. of beneficiaries												
				SC			ST			Others			TOTAL			TOTAL
				M	W	T	M	W	T	M	W	T	M	W	T	
3.	Farmer's visit to KVK	22	April,10-11	15	0	15	1	0	1	23	0	23	39	0	39	39
		27	May,10-11	17	0	17	0	0	0	24	1	25	41	1	42	42
		34	June,10-11	37	0	37	0	0	0	37	0	37	74	0	74	74
		22	July,10-11	1	0	1	1	0	1	22	0	22	24	0	24	24
		25	August,10-11	14	0	14	0	0	0	14	0	14	28	0	28	28
		71	Sept,10-11	15	1	16	0	0	0	67	1	68	82	2	88	88
		45	Oct,10-11	25	0	25	1	0	1	32	0	32	57	1	58	58
		44	Nov,10-11	33	1	34	0	0	0	60	1	61	93	2	95	95
		33	Dec,10-11	20	2	22	0	0	0	31	1	32	51	3	54	54
		88	Jan,11-12	21	3	24	2	0	2	85	12	87	98	15	113	113
		56	Feb,11-12	21	7	28	0	0	0	35	20	55	56	27	83	83
		48	March,11-12	17	8	25	0	0	0	33	0	33	50	8	58	58
	TOTAL	515	April,10-March,12	236	22	258	5	0	5	463	36	489	693	59	756	756



Activity	No. Of activities organized	Duration	No. of beneficiaries													
			SC			ST			Others			TOTAL			TOTAL	
			M	W	T	M	W	T	M	W	T	M	W	T		
Technology Week	1	Jan.12	21	7	28	3	0	3	145	139	284	169	146	315	315	
Kisan Mela	1	9th -12th Jan 2012	-	-	-	-	-	-	-	-	-	-	-	-	1500	
Lectures delivered as Resource person	9	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	305	
Newspaper coverage	5	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	5	
TV talks	6	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	6	
Popular articles	4	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	4	
Extension Literature	1	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	4	
Exposure visits	4	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	4	
Soil health Camp	4	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	121	
Soil test campaigns	1	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	30	
Celebration of important days (specify) 1. 15August 2. 26 January	2	2011-12	-	-	-	-	-	-	-	-	-	-	-	-	76	
Any Other (Specify) 1. ARS (FET) Village Seminar	1	2010-12	-	-	-	-	-	-	-	-	-	-	-	-	145	
TOTAL	39	April 2010-March 2012	21	7	28	3	0	3	145	139	284	169	146	315	2509	
GRANDTOTAL	632	April 2010-March 2012	621	45	666	9	0	9	1109	231	1330	1734	278	2016	4210	

**6 (a). Linkage established with other organization/line departments/institutes. (2010-2011) :**

Sl. No.	Name of the organization/line departments/institutes etc	Area (activity) of linkage
1.	Deptt. of Sericulture, Murshidabad, GOWB	Technical support.
2.	Deptt. of Agriculture, Murshidabad, GOWB	Organization of FLDs programmes, trainings Soil testing
3.	Deptt. of Horticulture, Murshidabad, GOWB	Organization of FLDs programmes, trainings
4.	Deptt. of Animal Resource Development, Murshidabad, GOWB	Organization of FLDs programmes, trainings



5.	Deptt. of Fishery, Murshidabad, GOWB	Organization of FLDs programmes, trainings
6.	Pulse & Oil Seed Research station, Berhampur	Technical guidance regarding Pulses and Oilseeds, supply of critical inputs
7.	Murshidabad Social Science & Research Foundation	Technical support
8.	ATMA, Murshidabad	Programme planning
9.	Soil and Fertilizer Testing Laboratory	Testing of soil sample
10.	NABARD	Farmers Club and Self Help Groups
11.	Zilla parishad, Murshidabad	Administrative
12.	IFFCO	Technical support, supply of fertilizer
13.	National Horticulture Mission.	Funding for rejuvenation of mango trees and establishment of vermicompost unit and Training
14.	BCKV	Technology assessment and refinement , Critical inputs , trainings, Weather based Agro advisory Service

**6 (b) Linkage established with other organization/line departments/institutes. (2011-2012) :**

Sl. No.	Organization	Type of linkage
1.	Deptt. Of Sericulture, Murshidabad, GOWB	Technical support.
2.	Deptt. Of Agriculture, Murshidabad, GOWB	Joint implementation of FLDs programmes, trainings Soil testing
3.	Deptt. Of Horticulture, Murshidabad, GOWB	Joint implementation of FLDs programmes, trainings
4.	Deptt. Of Animal Resource Development, Murshidabad, GOWB	Joint implementation of FLDs programmes, trainings
5.	Deptt. Of Fishery, Murshidabad, GOWB	Joint implementation of FLDs programmes, trainings
6.	Pulse & Oil Seed Research station, Berhampur	Technical guidance regarding Pulses and Oilseeds, supply of critical inputs
7.	Murshidabad Social Science & Research Foundation	Technical support
8.	ATMA, Murshidabad	Programme planning, participation in meeting
9.	Soil and Fertilizer Testing Laboratory	Testing of soil sample
10.	NABARD	Formation of Farmers Club and Self Help Groups and financial support
11.	Zilla parishad, Murshidabad	Administrative
12.	IFFCO	Technical support, supply of fertilizer



13.	National Horticulture Mission.	Funding for rejuvenation of mango trees and establishment of vermicompost unit and Training
14.	BCKV	Technology assessment and refinement , Critical inputs , trainings, Weather based Agro advisory Service
15.	Agriculture Marketing, Berhampore, Murshidabad	Programme planning , training programme etc.
16.	Ambuja cement foundation (NGO)	Collaborating works in the field of training and demonstration
17.	Sri path Sing College , Jiaganj, Murshidabad	Collaborating training
18.	Engineering College, Jiaganj, Murshidabad	Technical help
19.	Office of the Block Development Officer, Bhagwangola, Murshidabad	Administrative Support
20.	District Industries Centre	Knowledge Exchange
21.	Sub divisional Agriculture Office, Lalbag, Murshidabad	Collaborating training
22.	CIFA, Rahora, W.B.	Collaborating training
23.	DRDC, Berhampore, MSD	Programme planning, participation in meeting
24.	Different Chemical Co.	Sponsoring different training programme

## 7. Details of outside fund received for the sponsored projects/training/seminar etc.

Name of the Activity (projects/training/seminar/camp etc.) with Duration (Dates)	Name of the sponsoring organization/line departments/institutes etc.	Total fund received or sanctioned for the purpose
Training -3 nos. (06.09.11, 06.02.12, 13.02.12)	Bayer Crop Science, CIFA, Indofil Industries Ltd	9,250.00

## 8. Major achievement / Success story (Discipline-wise and point - wise):

### Success story -1 (Horticulture)

#### A. Introduction of pea with variety PSM-3 in the cropping sequence.

- B. Technology/ Process which was intervened for its success:** Cultivation of pea as new crop along with high yielding variety namely PSM-3 in the cropping system of farmer particularly in the 5 adoptive villages of KVK.

#### Effect of the technology/process

**Production :** 6.85 q from 0.06 ha of land by individual farmer

**Productivity :** 114.2q/ha

Economic gains (per unit expenditure, gross income, net income, C:B ratio) :





**Cost of Cultivation:** Rs.33000.00 per ha

**Gross income :** Rs. 114217.00 per ha

**Net income:** Rs. 81216.00

**B:C ratio:** 2.46

### Success story-2 (Horticulture)

#### A. CULTIVATION OF ELEPHANT FOOT YAM ALONG WITH AMARANTHUS AS INTERCROP.

- B. Technology/ Process which was intervened for its success:** Cultivation of Elephant Foot yam along with amaranthus as intercrop in the farmer field particularly in the 5 adoptive villages of KVK.

**Effect of the technology/process**

**Production:** 46.5 q of Elephant Foot Yam and 2.6 quintal Amaranthus from 0.075ha of land by individual farmer

**Productivity:** 348.75/ha

**Economic gains (per unit expenditure, gross income, net income, B:C ratio) :**

**Cost of Cultivation:** Rs.151676.00 per ha

**Gross income:** Rs. 401345.00 per ha

**Net income:** Rs. 249669.00

**B:C ratio:** 2.59

#### 9. Activities in the instruction Farm (enterprise – wise) with resource / fund generation:

Sl. No.	Crop / Enterprise	Production in Quintal	Amount in Rupees
1	EFY	15 q	30,000.00 Sale-14,000.00 Rest 16,000.00 (seed wept for further cultivation & already in the field)
2	Fish (Fingerling production)	-	32,750.00
3	Fish (Pond leas)	-	91,860.00
4	Okra, pai, ipiomea (cultivated by SHG)	-	400.00
5	Sale of fruit	-	10,000.00
6	Sale of fodder	-	2400.00
7	Sale of Lentil	-	1460.00
8	Sale of wheat	-	8000.00
9	Sale of Jute	-	5,000.00
10	Sale of bamboo	-	200.00



## F

## DETAILS OF PUBLICATION OF BOOK, BOOKLETS, LEAFLETS, MANUAL ETC.

### F.1. FACULTY OF VETERINARY & ANIMAL SCIENCES

#### F.1.1. Department of Veterinary Parasitology

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Practical Manual	General Veterinary Parasitology and Helminthology Course No. VPA - 211	Prof. J. D. Ghosh, Dr. S. Baidya, Prof. (Rtd)C. K. Dasgupta, Dr. M. C. Badyopadhyay
Annual Report – 2010-11	All India Network Programme on Gastrointestinal Parasitism	Prof. J. D. Ghosh
Annual Report – 2011-12	All India Network Programme on Gastrointestinal Parasitism	Prof. J. D. Ghosh

#### F.1.2. Department of Veterinary Bio-Chemistry

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Practical Manual	Veterinary General Biochemistry	Dr. S. Batabyal Dr. S. Chattopadhyay
Practical Manual	Physiological Chemistry, Clinical Biochemistry	Dr. S. Batabyal Dr. S. Chattopadhyay
Practical Manual	Immunobiochemical Techniques	Dr. S. Batabyal

#### F.1.3. Department of Veterinary Microbiology

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Leaflet on 'Economic importance of integrated duck cum fish farming'	Leaflet	Dr. S. S. Dana, Dr. S. K. Das and Dr. S. N. Joardar





Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Booklet on 'Jaibo Suraksha' (Biosecurity)	Booklet	Dr. P.K. Das, Dr. B. K. Biswas and Dr. S. N. Joardar.
Training Manual on Integrated fish cum duck farming by scientific methods (in Bengali)	Training manual	Dr. S. S. Dana. Dr. S. K. Das and Dr. S. N. Joardar
Annual Report – AINP-BT (2010-11).	Annual Report	Dr. S. N. Joardar
Annual Report – AINP-BT (2011-12).	Annual Report	Dr. S. N. Joardar
Annual Report- DBT sponsored RGYI scheme- 2010.	Annual Report	Dr. S. N. Joardar
Practical manual : VMC-211 and VMC-221.	Practical manuals	Dr. S. N. Joardar Dr I. Samanta Dr D. P. Isore

#### F.1.4. Department of Veterinary Pathology

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Manual	VPP-211 VPP-221 VPP-311 VPP-321 VPP-322	Dr. S. K. Mukhopadhyay Dr. S. Pradhan Dr. N. C. Patra
Monograph	Chlamydiosis: A monograph	Dr. N. C. Patra
Books	Neoplasms in Dogs. LAP LAMBERT Academic Publishing GmbH & Co. KG Saarbrücken, Germany [ISBN: 978-3-8443-9398-9].	Dr. S. K. Mukhopadhyay



Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co Author (s)
	Diseases of Wild Spotted Deer (VDM Verlag Dr. Muller GmbH & Co. KG, ISBN : 978-3-639-36626-6).	Dr. S. K. Mukhopadhyay
	Nanotechnology in Veterinary Science. VDM Verlag Dr. Müller GmbH & Co. KG [ISBN: 978-3-639-36913-7].	Dr. S. K. Mukhopadhyay
	Immunostimulants, Probiotics and Prebiotics. LAP LAMBERT Academic Publishing GmbH & Co. KG, Saarbrücken, Germany [ISBN: 978-3-8454-0271-0].	Dr. S. K. Mukhopadhyay
	Viral Infection in Large Ruminants. LAP LAMBERT Academic Publishing GmbH & Co. KG, Saarbrücken, Germany [ISBN: 978-3-8443-9398-9].	Dr. S. K. Mukhopadhyay

#### F.1.5. Department of Veterinary Epidemiology & Preventive Medicine

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Practical manual for Epidemiology (Course No VEP-411, 1+1)	For practical use of U.G. students	Prof. Chanchal Guha Dr. Ujjwal Biswas
Practical manual for preventive Veterinary Medicine I (Course No VEP-422, 0+2)	For practical use of U.G. students	Prof. Chanchal Guha Dr. Ujjwal Biswas
Practical manual for preventive Veterinary Medicine II (Course No VEP-512, 0+2)	For practical use of U.G. students	Prof. Chanchal Guha Dr. Ujjwal Biswas

#### F.1.6. Department of Veterinary & AH Extension Education

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Manual	VAE-311	Dr. Debasis Ganguli
Manual	VAE-321	Dr. Debasis Ganguli



**F.1.7. Department of Veterinary Gynaecology & Obstetrics**

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Text Book of Veterinary Gynaecology, Artificial Insemination, Obstetrics and Assisted Reproduction	Veterinary Gynaecology, Artificial Insemination, Obstetrics and Assisted Reproduction	Siddhartha Basu S.K. Bandyopadhyay B. Bhattacharyya Ravindra Roy Choudhury
Practical Manual VOG- 412, VOG-522	Practical Manual	Prof.(Dr.)Siddhartha Basu, Dr. Pramode Ranjan Nandi, Dr. Uttam Datta, Dr.(Mrs.) Kalyani Ray, Prof.(Dr.) Shyamal Kumar Roy

**F.1.8. Department of Veterinary Surgery & Radiology**

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Text Book on "Veterinary Surgery and Radiology" (At per VCI Syllabus)	Book	Samit Kumar Nandi, Samar Halder and Mozammel Haque 2010
"Advances in Medicine and Biology" by Nova Science Publishers, Inc., 400 Oser Avenue, Suite 1600, Hauppauge, NY 11788	Book Chapter on "Recent advancement of ceramics in biomedical research"	S. K. Nandi, B. Kundu, R. N. Bhattacharya and D. Basu  <b>2011; Vol. 27 pp. 1-85</b>
"Advances in Medicine and by Nova Science Publishers, Inc., 400 Oser Avenue, Suite 1600, Hauppauge, NY 11788, USA	Book chapter on "Potentiality of autologous bone marrow derived cells in wound and orthopaedic surgical chair"	Samit Kumar Nandi, Biology" Samiran Bandyopadhyay and C. S. Chakrabarti  2011, Vol. 21:
Book on "Biomaterials Applications for Nanomedicine" In Tech Open Access Publisher, Austria	Book Chapter on "Development and Applications of Varieties of Bioactive Glass Compositions in Dental, Third Generation Tissue Engineering, Orthopaedic and as Drug Delivery System"	Samit Kumar Nandi, Biswanath Kundu and Someswar Datta  2011, pp. 69-116



### F.1.9. Department of Livestock Products Technology

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Comparison of Ghungroo, an Indian pig breed with large white Yorkshire-their meat quality & Productivity.	LAMBERT Academic publishing.	Anupam Khan. Sudi Kumar Das Prof. S. Biswas
Characterization of Biomaterials, Elsevier, UK	Book chapter entitled "In vivo characterization of Biomaterials"	Dr. Samit Kumar Nandi Prof. S. Biswas
"Marine Biomaterials" Isolation, Characterization and Application), CRC-Taylor & Francis publishers	Book chapter on "Application of marine biomaterials in orthopaedic and soft tissue surgical challenges	Dr. Samit Kumar Nandi Dr. Uttam Datta Prof. S. Biswas

## F.2. FACULTY OF FISHERY SCIENCES

### F.2.1. Department of Aquatic Animal Health

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Freshwater Fish Parasites NIPA (New India Publishing Agency) pp. 164, ISBN No.978-93-81450-25-3	Freshwater Fish Parasites NIPA (New India Publishing Agency) pp. 164, ISBN No.978-93-81450-25-3	G Dash
Parasitic Diseases of Exotic Carps LAMBERT Academic Publishing (E-Publication), pp: 169, ISSN No. 978-3-8465-8355-5	Parasitic Diseases of Exotic Carps LAMBERT Academic Publishing (E-Publication), pp: 169, ISSN No: 978-3-8465-8355-5	Debolina Majumder. Rajib Deb and G. Dash

### F.2.2. Department of Aquatic Environment Management

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Management Issues in Inland Fisheries and Aquaculture	Eradication of Banded Pond Snail ( <i>Bellamya Bengalensis Lamarck, 1882</i> ) from Fresh Water Pond for Sustainable Aquaculture Management Edited by Dr. A. P. Sharma et al., 2012 Narendra Publishing House, New Delhi	Dr.B.K.Das. T.Mitra,S.Sahu and K.C.Dora



**F.3. FACULTY OF DAIRY TECHNOLOGY****F.3.1. Department of Dairy Microbiology**

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Manual on Dairy Microbiology ( DM- 111)	-	Prof. A. K. Misra
Manual on Dairy Microbiology ( DM- 243)	-	Dr. T. K. Maity
Manual on Dairy Microbiology ( DM- 233)	-	Dr. T. K. Maity
Manual on Dairy Microbiology ( DM- 244)	-	Dr. T. K. Maity

**F.4. DIRECTORATE OF RESEARCH, EXTENSION & FARMS**

Name of book, booklets, Handout, report, manuals etc.	Name of the specific item published	Author / Co-Author (s)
Aquaculture in Changing Climate of Sundarban	2012, pages 175	First Author
Sundarbans: Retrospect and Prospects	Climate change in Sundarban and adaptation strategy for resilient aquaculture 2012, page: 116-128	First Author



## G

## PUBLICATION ON RESEARCH FINDINGS

## G.1. RESEARCH PUBLICATIONS OF FACULTY OF VETERINARY &amp; ANIMAL SCIENCES

## G.1.1. Department of Animal Genetics and Breeding

Name of the Article	NAAS rating	Impact factor
D.K.Yadav, S.Taraphder, A.K. Sahoo and K.C. Dhara (2010). Investigation of Transferrin Polymorphism in Garole sheep. Veterinary Research Communication. Vol.34. Number . 3 Page : 277-284.		
S.Taraphder , S.Tomar and A.K.Gupta (2010). Studies on Herd life and Productive herd life of Murrah buffaloes in an organized herd . Vets Vision. Volume I, Issue II. June,2010: 72-78.		
S. Taraphder , S.S Tomar and A.K. Gupta (2011). Studies on disposal pattern in an organized herd of Murrah buffalo. Online Journal of Veterinary Research. Volume 15 (1): 68-75.		
A. Ghosh, F. P. Savaliya, D. N. Rank, C. G. Joshi, K. Khanna and S. Taraphder (2011). Genetics of TGF- $\beta$ 3 gene polymorphism in inbred synthetic white leghorn breed of poultry . Journal of Evolutionary Biology Research Vol. 3(2), pp. 19-21, February 2011		
B. Kumar, S Taraphder, A.K. Sahoo, K.C. Dhara, I. Samanta and S.S. Misra. (2011).Haemoglobin polymorphism and its effect on different economic traits of Murrah buffalo. Indian Journal of Animal Sciences 81 (4): 417-19, April 2011		
P.K. Panja and P. Biawas (2011). Causes of mortality in Murrah buffalo in an organized herd. Exploratory Animal and Medical Research, Vol: 1, Issue : 1 July 2011, Page No: 68-74		
P.K. Panja (2011). Estimation of Optimum Feeding Period in Murrah buffalo. Exploratory Animal and Medical Research, Vol: 1, Issue: 1, July 2011, Page No: 57-61.		
M. Mitra, S. Taraphder and A. Verma (2011). Polymorphism of toll like receptor-4 gene in Murrah buffalo (Bubalus bubalis). Online Journal of Veterinary Research. Volume 15(6): 492-499.		





Name of the Article	NAAS rating	Impact factor
P.K. Panja and S.Taraphder(2012). Optimization of Age at First Calving in Karan Fries Cattle. Exploratory Animal and Medical Research. Vol. 1, Issue-2, Page: 124-130.		
M.Mitra, S.Taraphder G.S. Sonawane and A. Verma(2012). Nucleotide Sequencing and SNP detection of Toll Like Receptor-4 (TLR-4) Gene in Murrah Buffalo(Bubalus bubalis). ISRN Molecular Biology. ISRN Molecular Biology Volume 2012 (2012), Article ID 659513, 7 pages.		
R.Guha and P.K. Senapati and S.Taraphder (2012). Association of Transferrin polymorphism with different reproductive traits of Gir Cattle. Exploratory Animal and Medical Research, Vol-1, Issue-2 Page : 141-144.		
D.K.Yadav, S.Taraphder, K.C. Dhara, S. Batabyal, I.samanta and M. Mitra (2012). Association of transferrin polymorphism with different economic traits of Garole sheep. International Journal of Livestock Production. Vol. 3(1) : 6-11.		
K. C. Dhara , N. Ray. , S. Taraphder and S. Guha (2012). Milk production of Black Bengal goats in West Bengal. International Journal of Livestock Production. Vol. 3(2) : 17-20.		
I Samanta, S. N. Joardar, Palas Das, D. Ghosh, T. K. Sar, S. Taraphder (2012). Multi Drug Resistant Pseudomonas aeruginosa From Wild Hanuman Langur in India. Journal of Biomedical Sciences. Vol. 1 No. 2:1. Page No. :1-2.		

### G.1.2.Department of Animal Nutrition

Name of the Article	NAAS rating	Impact factor
Mondal, M.K. and Biswas, P. ( 2010 ) Different sources and levels of copper supplementation on performance and nutrient utilization of castrated Black Bengal (Capra hircus) kids diet. <i>Asian – Australasian Journal of Animal Science</i> . 7: 1067 – 1075.		
Mondal, M.K., Das, T.K., Biswas, P., Samanta, C.C. and Bairagi, B.( 2010 ) Influence of dietary inorganic and organic copper salt and level of soybean oil on plasma lipids, metabolites and mineral balance of broiler chickens. <i>Animal Feed Science and Technology</i> .		
Mondal, M.K , Panda, S. and Biswas, P. (2010) Effect of Microbial Phytase in Soybean Meal Based Broiler Diets Containing Low Phosphorous. <i>Int. J. of Poul. Sci</i> . 6: 201 – 206.		



Name of the Article	NAAS rating	Impact factor
Mondal, M.K., Biswas, P., and Mazumdar, D. (2010) Effect of supplementation of two sources of copper on Plasma lipid profile and mineral balance of Black Bengal goats. <i>Ani. Nutri &amp; Feed Technology</i> 7: 37 – 46.		
Mondal, M.K., Biswas, P., Roy, B. and Mazumdar, D. (2010) Effect of copper sources and levels on the serum lipid profiles in Black Bengal ( <i>Capra hircus</i> ) kids. <i>Small Ruminant Research</i> , 67: 28 – 35.		
Mondal, S., Samanta, C.C. and Biswas, P. (2010) Effect of organic and inorganic trace minerals at different levels on the performance and plasma minerals of cross-bred male calves. <i>Ani. Nutri &amp; Feed Technology</i> . 9: 45 – 50.		
Samanta, C.C., Mondal, M.K. and Biswas, P. (2010) Effect of feeding mineral supplements on health status and reproductive performance of anoestrous cows. <i>Ind. J. of Ani. Nutri.</i> 22: 177 – 184.		
Saravanan E., Soren S. and Samanta G. (2010) Replacement of fish meal with yeast nucleotide on the performance in ducklings. <i>Ind. J. of Poul. Sci.</i> 45(1): 74 – 76.		
Samanta G. and Ghosh C. (2010) Organic acids as an alternative to antibiotic supplementation in Broiler chicks and Japanese Quail. <i>Proceedings XIII European Poultry Conference</i> , Feed and Feed stuff.		
Zosangpuui, Patra A.K., Samanta G. And Pal K. (2010) Performance of Khaki Campbell ducks added with different sources of fats and an emulsifier. <i>Proceedings 7th ANA Conference</i> , Bhubaneswar, Pp – 177.		
Mondal S., Halder S., Ghosh T.K. and Samanta G. (2010) Nutritional potential of undigested rumen contents as a cattle feed. <i>Proceedings 7th ANA conference</i> , Bhubaneswar, Pp – 138.		
T.K. Ghosh, S. Halder, M.R. Bedford, N. Muthusami and I. Samanta (2011) : Assessment of yeast Cell Wall as replacement for antibiotic growth promoters in broiler diets : Effects on performance, intestinal, histo-morphology and humeral immune responses. <i>Journal of Animal Physiology and Animal Nutrition</i> . DOI: 10.1111/j. 1439-0396.2011.01155. x		
S. Halder, T.K. Ghosh, Toshiwati, M.R. Bedford (2011) : Effects of yeast ( <i>Saccharomyces cerevisiae</i> ) and yeast protein concentrate on production performance of broiler chickens exposed to heat stress and challenged with <i>Salmonella enteritidis</i> . <i>Animal Feed Science and Technology</i> . ELSEVIER DOI :10.1016/j.anifeedsci.2011.03.007.		



Name of the Article	NAAS rating	Impact factor
T.K. Ghosh, Sudipto Haldar and David Creswell (2011): Organic trace minerals improve broiler performance. Asian Agribusiness Media Pte Ltd. Poultry Feed Quality Conference PyOrganic Minerals India 1 DCC 3851 18/03/11.		
T.K. Ghosh and Sudipto Haldar, Department of Animal Nutrition, WBIAFS (2011): Yeast Protein concentrate improves performance of broiler chickens exposed to heat stress: Asian Agribusiness Media Pte Ltd. Poultry Feed Quality Conference. Published online.		
Dr. Sudipto Haldar and Prof. T.K.Ghosh, Department of Animal Nutrition (2011): Effect of Betaine Hydrochloride on Broiler Performance during Heat Stress: Asian Agribusiness Media Pte Ltd. Poultry Feed Quality Conference. Published online.		
Souvik Mondal, Sudipto Haldar, Pinaki Saha, Tapan Kumar Ghosh, Department of Animal Nutrition, WBIAFS (2010) : 'Metabolism and Tissue Distribution of Trace Elements in Broiler Chickens' Fed Diets Containing Deficient and Plethoric Levels of Copper, Manganese, and Zinc: Bio Trace Elem Res (2010) 137: 190-205; DOI 10.1007/s12011-009-8570-z.		

### G.1.3.Department of Veterinary Biochemistry

Name of the Article	NAAS rating	Impact factor
Sheet S, Ghosh B, Nandi P.R, <b>Batabyal S</b> , Rana T, Nandi A(2010).Biochemical and mineral profiles of follicular fluid of black Bengal goat <i>The Indian Veterinary Journal</i> , vol 87(6): 561-562.	6.0	
Bera, A., Joardar, S.N., Abraham, T.J. and <b>Batabyal, S.</b> (2010).Dynamic changes in specific immune-effector activities in <i>Aeromonas hydrophila</i> sensitized catla, <i>catla catla</i> (Hamilton) <i>Indian J. Comp. Microbiol. Immunol. Infect. Dis</i> ,vol(31),no 1& 2(Jan-Dec):5-10.	----	
Roy, J., Polley, S., De, S., Mukherjee, A., <b>Batabyal, S.</b> , Pan, S., Brambha, B., Datta, T.K. and Goswami, S.L.(2011). Polymorphism of fecundity genes (FecB, FecX and FecG) in the Indian Bonpala sheep. <b>Animal Biotechnology</b> . 22: 151-162.	7.3	



#### G.1.4. Department of Veterinary Microbiology

Name of the Article	NAAS rating	Impact factor
Mondal, S. K., Sadhukhan, T. K., Mahanti, A., <b>Isore, D.P.</b> , Samanta, I. (2010). Comparative Evaluation of Immune Response of Different Ranikhet Disease Vaccines in Varying Schedules with Lentogenic strains in Broilers. <i>Indian Veterinary Journal</i> 87(8): 820-821.	6.0	
Biswas, M., Joardar, S.N., <b>Samanta, I.</b> , <b>Isore, D.P.</b> , Aich, R., Parui, P. (2011). Conducive environment for propagation of potent Blue Tongue vector exists in West Bengal. <i>Indian Journal of Animal Health</i> 50 (2): 46-48.	2.9	
Panda, M.K., Joardar, S.N., Kabiraj, P., <b>Isore, D.P.</b> , <b>Samanta, I.</b> (2011). Detection of sub clinical Blue Tongue in sheep of un-affected part of India. <i>Indian Journal of Animal Health</i> 50 (2): 1-4.	2.9	
Vijayakumar, R., samanta, R., Samanta, A.K. and <b>Joardar, S.N.</b> (2010). Influence of different types of bedding materials on reproductive performances of mice. <i>Indian Journal of Animal Production and Management</i> 26 (1-2): 46-49.	3.2	
Vijayakumar, R., samanta, R., Samanta, A.K., Guria, R. and <b>Joardar, S.N.</b> (2010). Influence of different types of bedding materials on immune response and serum biochemical profile of caged mice. <i>Veterinary World</i> 3(9): 418-421.	4.0	
Bera, A., <b>Joardar, S.N.</b> , Abraham, T.J. and Batabyal, S. (2010). Dynamic changes in specific immune-effector activities in <i>Aeromonas hydrophila</i> sensitized catla, <i>Catla catla</i> (Hamilton). <i>Indian Journal of Comparative Microbiology, Immunology and Infectious Diseases</i> Vol. 31 (1&2): 5-10.	--	
Panda, M., Mondal, A. and <b>Joardar, S.N.</b> (2011). Seroprevalence of bluetongue virus in sheep, goat and cattle in West Bengal, India. <i>Animal Science Reporter</i> Vol. 5(3): 105-110.	3.0	
Biswas, M., <b>Joardar, S. N.</b> , Samanta, I., Isore, D.P., Aich, R. and Parui, P. (2011). Conducive environment for propagation of potent bluetongue vector exists in West Bengal. <i>Indian Journal of Animal Health</i> Vol. 50(2): 46-48.	2.9	
Panda, M.K., <b>Joardar, S.N.</b> , Kabiraj, P., Isore, D.P. and Samanta, I. (2011). Detection of sub-clinical bluetongue in sheep of un-affected part of India. <i>Indian Journal of Animal Health</i> Vol. 50(2): 1-4.	2.9	
Mondal, T., Samanta, I., Dutta, T.K., <b>Joardar, S.N.</b> , Sar, T.K. and Isore, D.P. (2011). Isolation, molecular characterization and antibiogram study of <i>Pasteurella multocida</i> serogroup B from healthy cattle in West Bengal. <i>Indian Journal of Animal Health</i> Vol. 50(2): 43-45.	2.9	



Name of the Article	NAAS rating	Impact factor
Thangadurai, R., Sharma, S., Bali, D., Rana, Mahajan, V., <b>Samanta, I.</b> , Hazra, S. (2010). Prevalence of ocular disorders in an Indian population of horses. <i>Journal of Equine Veterinary Sciences</i> 30(6) : 326-329.	7.2	
Bandopaddhay, S., Riswas, T. K., Sasmal, D., Samanta, I., Ghosh, M K (2010). Evaluation of methanolic extract of <i>Allium sativum</i> and <i>Saussurea costus</i> in <i>Poephagus grunniens</i> with infectious keratoconjunctivitis. <i>Indian Journal of Animal Sciences</i> 80(3): 199-202.	6.6	
Mondal, S. K., Sadhukhan, T. K., Mahanti, A., Isore, D.P. <b>Samanta, I.</b> (2010). Comparative Evaluation of Immune Response of Different Ranikhet Disease Vaccines in Varying Schedules with Lentogenic strains in Broilers. <i>Indian Veterinary Journal</i> 87(8): 820-821.	6.0	
Sar, T.K., Mondal, T.K., <b>Samanta, I.</b> , Rahaman, A., Chakraborty, A.K. (2010). Disposition kinetics of ceftriaxone in mastitic cows following single dose intravenous administration at 2.55 mg /kg bwt. <i>Indian Journal of Animal Sciences</i> 80 (12): 1182-84.	6.6	
Bandopaddhay, S., Mahanti, A., <b>Samanta, I.</b> , Dutta, T K, Ghosh, M.K., Bera, A.K., Bandyopadhyay S, Bhattacharya, D. (2011). Virulence repertoire of Shiga toxin-producing <i>Escherichia coli</i> (STEC) and Enterotoxigenic <i>Escherichia coli</i> (ETEC) from diarrhoeic lambs of Arunachal Pradesh, India. <i>Tropical Animal Health Production</i> 43(3):705-710.	7.5	
Kumar, B., Taraphder, S., Sahoo, A.K., Dhara, K.C., <b>Samanta, I.</b> , Mishra, S.S. (2011). Haemoglobin polymorphism and its effect on different economic traits of Garole sheep. <i>Indian Journal of Animal Sciences</i> 81 (4): 417-19.	6.6	
Biswas, M., Joardar, S.N., <b>Samanta, I.</b> , Isore, D.P., Aich, R., Parui, P. (2011). Conducive environment for propagation of potent Blue Tongue vector exists in West Bengal. <i>Indian Journal of Animal Health</i> 50 (2): 46-48.	2.9	
Panda, M.K. Joardar, S.N., Kabiraj, P., Isore, D.P, <b>Samanta, I.</b> (2011). Detection of sub clinical Blue Tongue in sheep of un-affected part of India. <i>Indian Journal of Animal Health</i> 50 (2): 1-4.	2.9	
Ghosh, T.K., Haldar, S., Bedford, M.R., Muthusamy, N., <b>Samanta, I.</b> (2012). Assessment of yeast cell wall as replacements for antibiotic growth promoters in broiler diets: effects on performance, intestinal histo-morphology and humoral immune responses. <i>Journal of Animal Physiology and Animal Nutrition</i> (Berl) 96(2):275-84.	7.5	



Name of the Article	NAAS rating	Impact factor
Bandophaddhay, S., Lodh, C., Rahaman, H., Bhattacharya, D., Bera, A.K., Ahmed, F.A., Mahanti, A., <b>Samanta, I.</b> , Mondal, D.K., Bandophadhyay, S., Sarkar, S., Dutta, T.K., Maity, S., Paul, V., Ghosh, M.K., Sarkar, M., Peruah, K.K. (2012) Charecterization of Shiga toxin producing <i>Escherichia coli</i> and enteropathogenic <i>Escherichia coli</i> (EPEC) in raw yak milk and milk products. <i>Research in Veterinary Sciences</i> (in press; doi:10.1016/j.rvsc.2011.12.011).	7.5	
Yadav, D.K., Taraphder, S., Dhara, K.C., Batabyal, S., <b>Samanta, I.</b> , Mitra, D. (2012). Association of transferrin polymorphism with different economic traits of Garole sheep. <i>International Journal of Livestock Production</i> 3(1): 6-11.	--	
Sar, T.K., <b>Samanta, I.</b> , Hazra, P.H., Mandal, T.K. (2012). Effect of combined therapy of intravenous Ceftriaxone and oral polyherbal drug on milk enzyme activity in healthy and mastitic goats. <i>Applied Biological Sciences</i> 14(1).	3.6	
<b>Samanta, I.</b> , Sar, T.K., Das, P., Maji, A. K., Joardar, S.N. (2012). Single dose ceftriaxone therapy in acute Staphylococcal mastitis in a Jamunapuri goat. <i>Indian Journal of Animal Health</i> (Accepted).	2.9	

#### G.1.5. Department of Veterinary Parasitology

Name of the Article	NAAS rating	Impact factor
Jas,R.;Ghosh,J. D. and Das, K. (2010). Polyclonal antibody based coproantigen detection immunoassay for diagnosis of <i>Oesophagostomum columbianum</i> infection in goats. <i>Veterinary Parasitology</i> , 170: 262-267	1831	7.7
Jas, R.;Ghosh,J. D. and Das,K. (2010). Diagnosis of <i>Oesophagostomum columbianum</i> infection in goat by indirect enzyme linked immunosorbent assay. <i>Helminthologia</i> , 47(2):83-88	749	7.3
Jas, R.;Ghosh, J.D.;Pandit,S. and Das,K. (2010). Haemato-biochemical impact of primary infection of <i>Oesophagostomum columbianum</i> in goat. <i>Journal of Veterinary Parasitology</i> , 24 (2): 117-120.	1298	3.5
Pandit, S.;Jas, R.;Ghosh,J.D. and Moi,S. (2010). Impact of Gastrointestinal Nematodosis on Serum Biochemical Profiles in Garole sheep. <i>Indian Journal of Small Ruminants</i> , 16(1):79-82.	1755	4.3
Maiti, P.;Jas,R. and Ghosh,J. D. (2010). Impact of experimentally induced caecal coccidiosis in broiler chicken. <i>Journal of Interacademia</i> . 14(2): 208-214.	1149	3.0



Name of the Article	NAAS rating	Impact factor
Barman, D.;Chatterjee,A.;Guha, C.;Biswas, U.;Sarkar, J.;Roy, T.K.;Roy.B. and Baidya,S. (2010). Estimation of post vaccination antibody titre against goat pox and determination of protective antibody titre. <i>Small Ruminant Research</i> , <b>93</b> : 76-78.	1697	7.5
Kundu, K.; Rao, J.R.; Tewari, A.; Baidya, S. and Mishra, A.K. (2010). Existence of genetic variability among Indian isolates of <i>Trypanosoma evansi</i> . <i>Indian Journal of Animal Sciences</i> , <b>80</b> (1): 3-6.	795	6.6
Kumar,D.; Baidya. S.;Pandit,S. and Bandopadhyay,M.C. (2010). Acute <i>Toxoplasma gondii</i> (Rh Strain) infection in albino mice. <i>Environment and Ecology</i> , <b>28</b> (2A):1002-1004.	570	2.1
Kumar, D.;Baidya, S.;Pandit,S. and Bandopadhyay,M.C. (2010). Purification and cryopreservation of <i>Toxoplasma gondii</i> (RH Strain) tachyzoites from mice peritoneal cavity. <i>Journal of Interacademia</i> , <b>14</b> (1): 52-56.	1149	3.0
Bordoloi, G.;Jas, R. and Ghosh, J. D. (2011).Effects on serum mineral concentration in Sahabadi sheep experimentally infected with <i>Haemonchus contortus</i> . <i>Indian Journal of Small Ruminants</i> , <b>17</b> (2): 243-246.	1755	
Bordoloi,G.;Jas,R. and Ghosh, J. D. (2011).Effects of experimentally induced <i>Haemonchus contortus</i> infection on some serum enzyme activities in Garole sheep. <i>Journal of Interacademia</i> , <b>15</b> (1): 102-106.	1.	3.0
Bordoloi,G.;Jas,R. and Ghosh,J. D. (2011).Experimentally induced Haemonchosis in Garole sheep: Changes in serum mineral concentration. <i>Environment &amp; Ecology</i> , <b>29</b> (3): 1134-1137.	570	2.1
Bordoloi, G.;Jas,R. and Ghosh,J. D. (2011). Changes in haemato-biochemical pattern due to experimentally induced haemonchosis in Sahabadi sheep. <i>Journal of Parasitic Diseases</i> , <b>36</b> (1):101-105.	1208	4.3
Baidya, S.;Kumar, D.;Pandit,S. and Bandopadhyay,M.C. (2011). Haemato-biochemical changes in serially passaged and cryopreserved <i>Toxoplasma gondii</i> (RH strain) infection in mice. <i>Indian Journal of Veterinary Public Health</i> , <b>1</b> (1): 91-95.	--	--
Jas, R.;Bordoloi, G.;Ghosh, J. D.;Pandit, S.;Kumar,D. and Das, K. (2012). Comparative antigenic characterization of <i>Oesophagostomum columbianum</i> by hyper immune and immune serum. <i>Journal of Interacademia</i> , <b>16</b> (2a): 457-462.	1149	3.0



Name of the Article	NAAS rating	Impact factor
Bordoloi, G.; Jas, R. and Ghosh, J. D. (2012). Parasitological and haematobiochemical response to <i>Haemonchus contortus</i> infection in Garole sheep. <i>Indian Journal of Animal Sciences</i> . <b>82</b> (4): 359-362.	795	6.6
Ghosh, J. D.; Jas, R. and Bordoloi, G. (2012). Exploration of resistance/resilience against gastrointestinal nematode infection in Garole sheep. <i>Indian Journal of Animal Sciences</i> . <b>82</b> (8): 36-40.	795	6.6
Kumar, D.; Pandit, S.; Baidya, S.; Bordoloi, G.; Jas, R.; Parvin, P. K.; Bandyopadhyay, M. C.; Ranjan, A. and Islam, M. M. (2012). Histopathological impact of experimentally induced <i>Toxoplasma gondii</i> (RH strain) infection in rat. <i>Journal of Interacademia</i> , <b>16</b> (2a): 389-392.	1149	3.0
Parvin, P. K.; Kumar, D.; Baidya, S.; Pandit, S.; Sar, T. K.; Jas, R.; Bordoloi, G. and Bandyopadhyay, M. C. (2012). Comparative efficacy status of Sulphadoxine-Pyrimithamine, azithromycin and clindamycin drugs in experimentally induced acute murine toxoplasmosis. <i>Journal of Interacademia</i> , <b>16</b> (2a): 403-410.	1149	3.0
Parvin, P. K.; Kumar, D.; Baidya, S.; Pandit, S.; Sar, T. K.; Bordoloi, G.; Jas, R.; Bandyopadhyay, M. C. (2012). Comparative Haematobiochemical impact of experimentally induced acute <i>Toxoplasma gondii</i> (RH strain) infected and Sulphadoxine-Pyrimithamine, azithromycin and clindamycin treated mice. <i>Journal of Interacademia</i> , <b>16</b> (2a): 421-428.	1149	3.0
Kumar, D.; Pandit, S.; Baidya, S.; Bordoloi, G.; Jas, R.; Parvin, P. K.; Bandyopadhyay, M. C.; Ranjan, A. and Islam, M. M. (2012). Haematobiochemical impact of experimentally induced <i>Toxoplasma gondii</i> (RH strain) infection in rat. <i>Journal of Interacademia</i> , <b>16</b> (2a): 482-488.	1149	3.0

#### G.1.6. Department of Veterinary Pathology

Name of the Article	NAAS rating	Impact factor
Sarkar, Sanjay; Niyogi, Debasish; Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2010) In Vivo effect of carbon tetrachloride toxicity in rat liver. <i>Indian Pet J. – Online Journal Of Canines, Felines &amp; Exotic Pets</i> , <b>4</b> : 14-16.		
Mukhopadhyay, Sunit Kumar, Ganguly, Subha and Paul, Indira (2010) Histopathological Reports of Clinical Cases of Dog Skin Neoplasms. <i>Indian Pet Journal – Online Journal Of Canines, Felines &amp; Exotic Pets</i> , <b>4</b> : 17-24.		





Name of the Article	NAAS rating	Impact factor
Dhanarajam, Y.; Niyogi, Debasish; Ganguly, Subha; Paul, Indira and <b>Mukhopadhyay, Sunit Kumar</b> (2010) Pathobiological studies on induced Glyphosate (Herbicide) toxicity in rats. <i>Indian Pet J. – Online Journal Of Canines, Felines &amp; Exotic Pets</i> , <b>4</b> : 25-27.		
Thiyagaseelan, C.; <b>Mukhopadhyay, S.K.</b> ; Pradhan, S.; Patra, N.C.; Niyogi, D.; Isore, D.P.; Batabyal, S. and Ganguly, S. (2010) Studies on different clinico-pathological and patho-morphological effects in rats during induced alpha-cypermethrin toxicity. <i>Indian Pet J. – Online Journal Of Canines, Felines &amp; Exotic Pets</i> , Issue - April' 2010, <b>5</b> : 62-65.		
Ganguly, Subha; Paul, Indira and <b>Mukhopadhyay, Sunit Kumar</b> (2010) Study on protease producing bacteria in digestive tract of freshwater fishes. <i>Indian Pet J. – Online Journal Of Canines, Felines &amp; Exotic Pets</i> , Issue - April' 2010, <b>5</b> : 66-74.		
Hrangkhawl, Tarsingh; Niyogi, Debasish; Sarkar, Sanjay; Singh, Y.D.; Ganguly, Subha; Paul, Indira and <b>Mukhopadhyay, Sunit Kumar</b> (2010) Effect of organic acid salts and mannan oligosaccharide on the performance and its pathobiological changes in the intestine, liver and kidneys of broiler birds. <i>Poult. Line</i> , <b>10</b> (7): 8.		
Barman, Basana; Niyogi, Debasish; Ganguly, Subha; Paul, Indira and <b>Mukhopadhyay, Sunit Kumar</b> (2010) Studies on pathobiological and haematobiochemical effect of lysine chloride and lysine sulphate on broiler birds. <i>Poult. Line</i> , <b>10</b> (9):64.		
Bar, N.; <b>Mukhopadhyay, S. K.</b> ; Ganguly, S.; Niyogi, D.; Pradhan, S.; Patra, N. C.; Singh, Y. D. and Kalai, K. (2011) Pathobiological effects of xylanase enzyme on broiler birds. <i>Poult. Line</i> , <b>11</b> (2): 66.		
Kumar, Suman; Niyogi, Debasish; Ganguly, Subha; Paul, Indira and <b>Mukhopadhyay, Sunit Kumar</b> (2011) Haematological, biochemical and pathomorphological studies of induced levofloxacin toxicity in broiler chicken. <i>Poult. Line</i> , <b>11</b> (8): 93.		
<b>Mukhopadhyay, S. K.</b> and Ganguly, S. (2011) Histopathological characterization of canine venereal neoplasms in dogs. <i>Indian Vet. J.</i> <b>88</b> (9): 172-173.	6.0	
Ramesh, S., Bhowmik, M. K.; <b>Mukhopadhyay, S. K.</b> ; Ganguly, S. and Niyogi, D. (2011) Biochemical analysis of cerebrospinal fluid of cattle and buffaloes affected with spontaneous brain disorders. <i>Indian J. Anim. Sci.</i> <b>81</b> (5): 459-60.	6.6	



Name of the Article	NAAS rating	Impact factor
Dhanalakshmi, S.; Ganguly, S.; Pal, S.; Singh, Y.D.; Pradhan, S.; Patra, N.C.; Kalai, K.; Pandit, S. and <b>Mukhopadhyay, S.K.</b> (2011) Investigation on experimentally induced Ochratoxicosis and effect of Picrorrhizakurroon pathology and immune response in broilers. <i>Indian J. Vet. Pathol.</i> <b>35</b> (2):180-183	4.6	
<b>Mukhopadhyay, Sunit Kumar;</b> Ganguly, Subha and Paul, India (2011) Histopathological studies on mammary neoplasia in bitches. <i>Livestock Line</i> , <b>5</b> (3): 15-16.		
Samanta, A.; Niyogi, D., Ganguly, S.; Singh, Y. D.; Pal, S.; Pradhan, S.; Patra, N. C. and <b>Mukhopadhyay, S. K.</b> (2011) Study on immunosuppressive effect of vaccination against infectious bursal disease. <i>Indian J. Vet. Pathol</i>	4.6	
<b>Mukhopadhyay, Sunit Kumar;</b> Niyogi, Debasish; Ganguly, Subha and Paul, Indira (2010) Histopathological characterization of spontaneous mammary neoplasia in dogs in Kolkata (India). <i>Anim. Sci. Rep.</i> , <b>4</b> (4): 143-147.	3.0	
Biswas, A., Bhowmik, <b>M. K.</b> ; <b>Mukhopadhyay, S. K.</b> ; Ganguly, S. and Niyogi D. (2011) Epizootic ulcerative syndrome in freshwater fishes in Gangetic alluvial zone of West Bengal, India. <i>Anim. Sci. Rep.</i> , <b>5</b> (4): 147-152.	3.0	
Singh, K.S.; <b>Mukhopadhyay, S.K.</b> ; Ganguly, S.; Niyogi, D.; Thiyaaseelan, C. and Ali, I. (2010) Hematological and biochemical studies of stephanofilarial dermatitis in naturally infected cattle of West Bengal, India. <i>Res. Vet. Sci.</i> , <b>91</b> (2): 194-195; final version of article with full bibliographic details available online at: <a href="http://dx.doi.org/10.1016/j.rvsc.2010.11.019.NASS">http://dx.doi.org/10.1016/j.rvsc.2010.11.019.NASS</a>	7.5	
Niyogi, D., Pramanik, P.S., Joshi, R.K., Shukla, V.K., Mukhopadhyay, S.K. (2010) Pathological investigation of Hydropericardium syndrome outbreak in broiler birds in an organized farm. <i>Indian J. Anim. Hlth.</i> (2010), <b>49</b> (2):20-23.	2.9	
Kumar, Deepak., Niyogi, D., Ali, I., <b>Mukhopadhyay, S.K.</b> (2011) clinicopathological study of induced selenium toxicity in broiler chickens. <i>Indian J. Anim. health.</i> <b>50</b> (2):15-20	2.9	
Singh, Y.D., <b>Mukhopadhyay, S.K.</b> , Ali, M. A., Tolankhomba, T.C., Shah, M.A.A (2011) Short term toxicity studies of <i>Eupatorium adenophorum</i> in Swiss Albino Mice. <i>Int. J. Res. Phytochem. Pharmacol.</i> , <b>1</b> (3):165-171.		
Seth, D., Brahmachary, R.L., Ulrichs, C., Mondal, M., <b>Mukhopadhyay, S.K.</b> , Sasmal, N.K., Chandra, R., Gupta, S., Goswami, A (2011) Dsethvasan : A Novel Nanodrug Against Sleeping Sickness. <i>International Journal Of Nanoscience.</i> , vol 10, Nos. 1&2, 187-192.		



Name of the Article	NAAS rating	Impact factor
Rano, S.C.; Mukhopadhyay, S.K.; Ganguly, S.; Isore, D.P.; Singh, Y.D. and Singh, K.S. (2012) Investigation on affected lymph nodes of sheep collected from abattoirs of Kolkata. <i>Explor. Anim. Med. Res.</i> <b>1</b> (2): 177-180 [Reg.No. WBENG/2011/39610; Journal of West Bengal Veterinary Alumni Association, 68 K R Sarani, Kolkata, WB].		
Roy, H.S.; Niyogi, D.; Chowdhary, P.K.; Ganguly, S. and Mukhopadhyay, S.K. (2011) Pathomorphological and bacteriological studies of intestine of broilers fed with different combination of organic acid as a replacer of growth promoter antibiotics. <i>Indian J.Vet.Pathol.</i> (Accepted)	4.6	
Paul, I.; Isore, D.P.; Joardar, S.N.; Samanta, I.; Biswas, U.; Maiti, T.K.; Ganguly, S. and Mukhopadhyay, S.K. (2012) Orally administered $\beta$ -glucan of edible mushroom ( <i>Pleurotus florida</i> ) origin upregulates immune response in broiler. <i>Indian J. Anim. Sci.</i> <b>82</b> (7): 80- _ (In press; to be published in July '12 issue) [Citation / Immediacy Index: 0.008; ISSN: 0367-8318].	6.6	0.22
Chakraborty, D.; Ray, S.K.; Datta, U.; Mukhopadhyay, S.K. and Ganguly, S. (2012) Quantitative estimation of some macro- and micro-minerals in indigenous breed of porcine follicular fluid with special reference to follicular dynamics. <i>Indian J. Anim. Sci.</i> (In press; to be published in Aug'12 issue) [Citation / Immediacy Index: 0.008; ISSN: 0367-8318].	6.6	0.22
Upadhyay, P.K.; Ray, S.K.; Poddar, S.; Mukhopadhyay, S.K. and Ganguly, S. (2011) Simultaneous study on histopathological changes in testes and epididymides with relation to epididymal sperm morphology of subfertile bulls. <i>J. Pharma. Sci. Biomed. Sci.</i> , <b>4</b> (4): 1-4 [ISI Impact Factor: 0.2334; ISSN NO: 2330 - 7885] (indexed in DOAJ, Google Scholar, Geneva Foundation of Medical Education and Research (Switzerland), getcited, Science central, OpenJgate, Socol@r, Eastview, Information system, Gloethics.net, CiteseerX , Academic resources(ourglocal.com), EditLib(Education and Information Technology Digital Library), Dayang Journal system (Korea), UlrichsWeb Directory (Proquest), Biblioteca Universia and having positive response from Forest Products Abstracts, CABI, UK, Botanical Pesticides Abstracts, CABI, UK, AgBiotechNet, CABI, UK, Academic Resources (ourGlocal.com), Sirus, New Jour (Lauinger Library, George, Georgetown University, Washington), POPLINE (Johns Hopkins Bloomberg School of Public Health, USA), World Association of Medical Editors (WAME), National of agriculture library, USA (AGRICOLA), MysiteseerX, SCOPUS (Elsevier), Journal donation project (JDP) and many more.....).		0.2334
Sengupta, R.; Das, R.; Ganguly, S. and Mukhopadhyay, S. K. (2011) Antibio gram of isolates of <i>E. coli</i> and <i>Staphylococcus</i> spp. from chicken specimens. <i>African J. Agri. Res.</i> , <b>6</b> (18): Sept 2011 (ISI indexed journal; Impact factor 0.263; Published by Academic Journals Publisher: Open / Free Access Journals ISSN 1991-637X; www.academicjournals.org/JMA/).	6.7	



Name of the Article	NAAS rating	Impact factor
Kalai, K.; Nehete, R. S.; Ganguly, S.; Ganguli, M.; Dhanalakshmi, S.; Mukhopadhyay, S. K. (2011) Investigation of parasitic and bacterial diseases in pigs with analysis of hematological and serum biochemical profile. <i>J. Para. Dis.</i> <b>33</b> (1): June 2009 [Published online, doi: 10.1007/s12639-011-0068-x] ('Springerlink Publication' from <i>The Indian Society for Parasitology</i> ; ISSN: 0971-7196 (print version), ISSN: 0975-0703 (electronic version). Journal abstracted/indexed in CAB Abstracts, CAB International, EMCare, Global Health, Google Scholar, IBIDS, Indian Science Abstracts, IndMed, OCLC, PubMed, PubMedCentral, SCOPUS, Summon by Serial Solutions, Zoological Record.	4.3	
Chakraborty, D.; Nath, A. K.; Roy, S.; Mukhopadhyay, S. K. and Ganguly, S. (2011) Rare case report of dystocia due to suspected <i>Schistosomus reflexus</i> infected foetus in Jamunapari doe. <i>African J. Microbiol. Res.</i> <b>5</b> (30): doi: 10.5897/AJMR11.857 [ISSN 1996-0808, ISI indexed journal; www.academicjournals.org/AJMR].	7.0	0.533
Dandapat, D.K.; Mukhopadhyay, S.K.; Ganguly, S.; Dhanalakshmi, S. and Kar, I. (2011) Diseases of pigeon in and around Kolkata, India. <i>J. Para. Dis.</i> <b>36</b> (1): 99-100; doi: 10.1007/s12639-011-0078-8 (SpringerLink Publication from <i>The Indian Society for Parasitology</i> ; ISSN: 0971-7196 (print version), ISSN: 0975-0703 (electronic version).	4.3	
Sengupta, R.; Das, R.; Ganguly, S. and Mukhopadhyay, S. K. (2011) Survey on microbial quality of chicken meat in Kolkata, India. <i>Inter. J. Res. in Pure &amp; Appl. Microbiol.</i> <b>1</b> (3): 32-33 (Internationally indexed journal from <i>Universal Research Publications</i> ).		
Ganguly, Subha; Das, Ratna and Mukhopadhyay, Sunit Kumar (2011) Trial for isolation and identification of BHV-1 from nasal swab specimens of cattle. <i>Inter. J. Res. in Pure &amp; Appl. Microbiol.</i> <b>1</b> (3): 34-35. (Internationally indexed journal from <i>Universal Research Publications</i> ).		
Sengupta, Rumni; Das, Ratna; Ganguly, Subha and Mukhopadhyay, Sunit Kumar (2012) Commonly occurring bacterial pathogens affecting the quality of chicken meat. <i>Inter. J. Chem &amp; Biochem. Sci.</i> <b>1</b> : 21-23 (ISSN 2226-9614, Published by International Scientific Organization <a href="http://iscientific.org/Journal.html">http://iscientific.org/Journal.html</a> ); [International Scientific Organization Research Committee <b>Evaluated Quality Grade: 46%</b> ].		



Name of the Article	NAAS rating	Impact factor
Mukhopadhyay, S.K.; Ganguly, S.; Pal, S; Singh, K.S. and Dhanalakshmi, S (2011) Histopathological characterization of canine skin neoplasms in dogs. 2(1): 23-25. <i>Double Helix Res.- An International Journal of Bio-Medical and Life Science Research</i> . [DHR Journals are <b>abstracted/ indexed in</b> AGRICOLA (JIA), NewJour (e-journals), Virtual Library Pharmacy, Connect Journals, ISA, Open J Gate, VetMed Resource, DOAJ, Dairy Science Abstracts are in the processing of many more. To be submitted to PubMed Central soon]. ISSN 2250 – 3684. (www.doublehelixresearch.com).		
Chakraborty, D.; Ray, S.K.; Datta, U.; Mukhopadhyay, S.K. and Ganguly, S. (2012) Selected Proteins and Enzymatic Analysis of Follicular Fluid of Indigenous Pig at Different Developmental Stages of Ovarian Follicle: a Quantitative Study. 3(1): 88-92. <i>Inter. J. Bio-res. &amp; Stress Mgt.</i> [Periodical from Puspa Publishing House, Kolkata, India; Indexed in CAB Abstracts, Partner with EBSCO Publishing, Ipswich, USA, recognition by Open Access Repository- <i>International Crops Research Institute for Semi-Arid Tropics</i> (ICRISAT) journal database ( <a href="http://ec2-50-19-248-237.compute-1.amazonaws.com/71/">http://ec2-50-19-248-237.compute-1.amazonaws.com/71/</a> ); <b>Print ISSN:</b> 0976-3988, <b>Online ISSN:</b> 0976-4038].		
Mandal, S., Mukhopadhyay, S.K., Ganguly, S. and Jana, S. (2012) Immunodiagnosis as an aid for early detection of <i>Fasciola gigantica</i> by glutathione S-transferase. <i>J. Para. Dis.</i> <b>33</b> (1): doi: 10.1007/s12639-012-0106-3 ('SpringerLink Publication' from <i>The Indian Society for Parasitology</i> ; ISSN: 0971-7196 (print version), ISSN: 0975-0703 (electronic version). Journal abstracted/indexed in CAB Abstracts, CAB International, EMCare, Global Health, Google Scholar, IBIDS, Indian Science Abstracts, IndMed, OCLC, PubMed, PubMedCentral, SCOPUS, Summon by Serial Solutions, Zoological Record.	4.3	
Ganguly, S. and Prasad A. (2010) Role of plant extracts and cow urine distillate as immunomodulator in comparison to levamisole – a Review. <i>J. Immunol. Immunopathol.</i> , <b>12</b> (2): 91-94 [Print ISSN : 0972-0561. Online ISSN : 0973-9149. Official publication of the Society of Immunology and Immunopathology, Indexed/abstracted in CAB International].	3.1	
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2012) Hybridoma technology- A Review. <i>Livestock Line</i> . <b>5</b> (9): 22-24.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2012) Systemic Lupus erythematosus- A Review. <i>Livestock Line</i> . <b>5</b> (10): 13-14.		
Ganguly, S.; Prasad, A.; Paul, I.; Seth, D. and Mukhopadhyay, S.K. (2012) Impact of nanotechnology in veterinary science- a review. <i>Livestock Line</i> . <b>5</b> (11): 51-52.		





PI, Conventional winter migratory bag net (CWMBN) project interacting with the fisherman regarding the fabrication of new experiential bag net



*Clarias gariepinus* with gas and fluid filled abdomen (Dropsy) identified under ICAR-NAE Project in the deptt. of Aquatic Animal Health



Chitosan alone & in combination with snail extract in bone healing; Alendronate coated metallic implants in bone healing at the Deptt of Vety. Surgery & Radiology



Dermatophytic lesions in cattle identified under the ICAR Outreach project on Zoonosis in the Deptt. of Vety. Public Health



PI, DST project on Integrated duck cum fish farming distributing duckling to the farmers





Project Team members visiting the Farmers field at Lodhasuli, Paschim Medinipur under NAIP on Sustainable farming system, Deptt. of Anima Nutrition



Dignitaries on the dais of NFDB sponsored National Training Programme in the Deptt. of Fishery Extension



Under RKVY on Backyard poultry farming, farmer getting egg from their RIR birds for family nutrition



Signature of MOU between WBUAFS and NMPPB, MOFPI, GOI



Farmers' meet with the Project Team at the field of AICRP on Goat Improvement (Block Benga Field Unit)



NMPPB, Govt. of India assisted Butchers Training programme organized by Deptt. of LPT & DREF at Murshidabad KVK





Name of the Article	NAAS rating	Impact factor
<p>Ganguly, S. and Mukhopadhyay, S.K. (2011) Nano science and Nanotechnology: Journey from past to present and prospect in veterinary science and medicine. <i>Inter. J. NanoSc. Nanotech.</i> 2(1): 79-83 [International journal published by Research India Publications, abstracted and indexed in International Societies like EBSCO's Database, Cambridge Science Abstract, Chemical Abstract Society, Elsevier Bibliographic Databases, SCOPUS, EMDiology, INSPEC, ACM Computing Reviews, ACM Guide to Computing Literature, DBLP, Mathematical Reviews, MathSciNet, Zentralblatt MATH, Journal Seek, Thomson Gale, Google Scholar and more...; ISSN 0974-3081. <a href="http://www.ripublication.com">www.ripublication.com</a>] [cited by Syam, Radhika; Kollannur, Justin Davis; Pratheesh M.D and Sumithra T.G. (2011) Nanotechnology: Applications in Veterinary Disease Diagnosis. <i>India. Indian Pet J. – Online Journal Of Canines, Felines &amp; Exotic Pets</i>, Aug '2011, 3(1): 5-12 [ISSN: 2230-7613 (Online)].</p>		
<p>123Ganguly, S. and Mukhopadhyay, S.K. (2011) Nanotechnological perspective in veterinary and allied sciences : A Review. Science Reuters (Accepted) [<a href="http://sciencereuters.com">http://sciencereuters.com</a>: ISSN: 2042-1400 (Online), ISSN: 2042-1397 (Print)] [cited by Syam, Radhika; Kollannur, Justin Davis; Pratheesh M.D and Sumithra T.G. (2011) Nanotechnology : Applications in Veterinary Disease Diagnosis. <i>India. Indian Pet J. – Online Journal Of Canines, Felines &amp; Exotic Pets</i>, Aug '2011, 3(1): 5-12 [ISSN: 2230-7613 (Online)].</p>		
<p>Ganguly, S.; Mukhopadhyay, S.K. and Guha, S.K. (2011) Stress to human health due to electromagnetic radiation emitted from mobile phone: A Review. <i>Inter. J. Bio-res. &amp; Stress Mgt.</i> 2(3): 359-362 [Periodical from Puspa Publishing House, Kolkata, India; Indexed in CAB Abstracts, Partner with EBSCO Publishing, Ipswich, USA, recognition by Open Access Repository- International Crops Research Institute for Semi-Arid Tropics (ICRISAT) journal database (<a href="http://ec2-50-19-248-237.compute-1.amazonaws.com/71/">http://ec2-50-19-248-237.compute-1.amazonaws.com/71/</a>); <b>Print ISSN:</b> 0976-3988, <b>Online ISSN:</b> 0976-4038].</p>		
<p>Ganguly, Subha, Mukhopadhyay, Sunit Kumar and Biswas, Subhasish (2012a) Preservation of food items by irradiation process. <i>Inter. J. Chem &amp; Biochem. Sci.</i> 1: 11-13 (ISSN 2226-9614, Published by International Scientific Organization <a href="http://iscientific.org/Journal.html">http://iscientific.org/Journal.html</a>); [International Scientific Organization Research Committee <b>Evaluated Quality Grade: 45%</b>].</p>		
<p>124 Ganguly, Subha, Mukhopadhyay, Sunit Kumar and Biswas, Subhasish (2012b) Potential threat to human beings from foodborne illness having serious implications on public health- A Review. <i>Inter. J. Chem &amp; Biochem. Sci.</i> 1: 65-68 (ISSN 2226-9614, Published by International Scientific Organization <a href="http://iscientific.org/Journal.html">http://iscientific.org/Journal.html</a>); [International Scientific Organization Research Committee <b>Evaluated Quality Grade: 42%</b>].</p>		



Name of the Article	NAAS rating	Impact factor
Commonly occurring fish diseases, their treatment and prevention. <i>Livestock Line</i> , 4(9): 23-27.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011a) Candidiasis in poultry birds. <i>Poult. Line</i> , 11(2): 33.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011b) Systemic impact of aspergillosis or brooder's pneumonia in birds. <i>Poult. Line</i> , 11(2): 49.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011) LCM - A rodent borne disease in man. <i>Livestock Line</i> , 4(12): 12.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011) Increasing water pollution from various sources affecting the inhabitant fishes adversely: A matter of great concern. <i>Fishing Chimes - The National Fisheries Journal Of India</i> , 30(1): 62 (ISSN 0971 – 4529).		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011) Infectious pancreatic Necrosis: A viral infection in fishes of high significance. <i>Livestock Line</i> , 5(2): 6-7.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011) 'Mycology' – down the history with general characteristics of fungus. <i>Livestock Line</i> , 5(3): 36.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011) Rhinosporidiosis in Livestock – A Fungal Menace. <i>Livestock Line</i> , 5(4): 3.		
Paul, Indira; Joardar, S.N.; Isore, D.P.; Samanta, I. and Ganguly, Subha (2011) Diagnosis of fungal diseases. <i>Livestock Line</i> , 5(5): 24-28.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011) Histoplasmosis- a systemic mycotic infection in animals. <i>Livestock Line</i> , 5(5): 24-28.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011) Q fever- The impact of <i>Coxiella burnetii</i> . <i>Livestock Line</i> , 5(7): 15-16.		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011a) Ehrlichiosis- An insight to the pathogen & its salient characteristics. <i>Livestock Line</i> , 5(8): 3.		



Name of the Article	NAAS rating	Impact factor
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2011b) Infectious bovine rhinotracheitis (IBR)- its different perspectives. <i>Livestock Line</i> , <b>5</b> (8): 26-27.		
Ganguly, S. and Mukhopadhyay, S K. (2012) Irradiation process of preservation in fish processing industries. <i>Fishing Chimes - The National Fisheries Journal Of India</i> , <b>31</b> (10): 75 (ISSN 0971 – 4529).		
Ganguly, Subha; Paul, Indira and Mukhopadhyay, Sunit Kumar (2012) Cryptococcosis-A fungal infection of primarily human beings. <i>Livestock Line</i> , <b>5</b> (10): 50.		
Nandi, Angshuman; Niyogi, Debasish; Ganguly, Subha and Mukhopadhyay, Sunit Kumar (2011) Haematobiochemical and pathomorphological studies of induced copper toxicity in broiler chicken. <i>Poult. Line</i> , <b>11</b> (2): 65.		
Hansda, R.N., Bhowmik, M.N., Jana, C., <b>Pradhan, S.</b> , Choudhary, P.K., Sarkar, S and Samanta. (2011) Prevalence. haemato-biochemical and patho-morphological changes of coccidiosis in garole sheep. <i>Indian J. Anim. Hlth.</i> <b>49</b> (1):23-28.	2.1	
Patra, N.C., Banerjee, S. and Singh, T.B. (2010) Phagocytosis: the Defence Mechanism in animals and birds . Everymans science from Indian science association . Vol .XLV. No 5. 308-311.		
Biswas,S., Dutta and Pradhan , S (2012) Clinical & haematological changes in degnala diseases of cattle . <i>Indian Vet. J.</i> <b>89</b> (1):18-20		

#### G.1.7.Department of Pharmacology & Toxicology

Name of the Article	NAAS rating	Impact factor
<b>Pabitra Hriday Patra</b> , Samiran Bandyopadhyay, Rakesh Kumar, Bakul Kumar Datta, Chinmoy Maji, Suman Biswas, Jeevan Ranjan Dash, Tapas Kumar Sar, Samar Sarkar, Sanjib K. Manna, Animesh Kumar Chakraborty, Tapan Kumar Mandal. Quantitative imaging of arsenic and its species in goat following long term oral exposure. <i>Food and Chemical Toxicology</i> <b>50</b> (2012) 1946–1950.	7.8	2.999
<b>Dewangan, G.</b> , Patra, P.H., Mishra, A., Singh, A.K., Datta, B.K., Sar, T.K., Chakraborty, A.K. and <b>Mandal, T.K.</b> (2012) Hematobiochemical, immunological, antioxidant status, and residues of flumethrin following weekly dermal application in goats. <i>Toxicological &amp; Environmental Chemistry</i> . <b>94</b> (2): 377–387		0.21





Name of the Article	NAAS rating	Impact factor
Saha P.K., Patra P.H., Pradhan N.R., Dey R., Das S. and <b>Mandal T.K.</b> (2011) Effect of <i>terminalia chebula</i> and <i>terminalia bellerica</i> on wound healing in induced dermal wounds in rabbits. <i>Pharmacologyonline</i> 2; 235-241.		0.12
Ghosh C. K., Datta B. K., Biswas S., Maji C., Sarkar S., <b>Mandal T.K.</b> , Majumder D. and Chakraborty A. K.(2011) Chronic Arsenicosis of cattle in West Bengal and its possible mitigation by sodium thiosulfate. <i>Toxicology International</i> . 18(2).		0.14
Ghosh A.K., Banerjee M., Bhowmik M.K., <b>Mandal T.K.</b> and Mishra A. (2011) A study on analgesic efficacy and adverse effects of Aloe vera in wistar rats. <i>Pharmacologyonline</i> 1. 1098-1108.		0.12
Chakraborty M, Dasgupta S, Bose P, Misra A, <b>Mandal T.K.</b> , Mitra M., Chakraborty J., and Basu D. (2011) Layered double hydroxide : Inorganic organic conjugate nanocarrier for methotrexate. <i>Journal of Physics and Chemistry of Solids</i> . 72:779-783.		1.381
Kundu B., Nandi S.K., Dasgupta S., Datta S., Mukherjee P., Roy S., Singh A.K., <b>Mandal T.K.</b> , Das P., Bhattacharya R. and Basu D. (2011) Macro-to-micro porous special bioactive glass and ceftriaxone-sulbactam composite drug delivery system for treatment of chronic osteomyelitis: an investigation through in vitro and in vivo animal trial. <i>J Mater Sci: Mater Med</i> 22:705-720		2.316
<b>Sar, T. K.</b> , Patra, P.H., Dash, J. and Mandal, T.K. (2011) Pharmacokinetic interaction of intramammary ceftriaxone and oral polyherbal drug (Fibrosin) in goats. <i>Drug Metabolism and drug interaction (Germany)</i> . 26 (4): 191-196.		0.36
<b>Sar, T. K.</b> , Samanta, I., Patra, P.H. and Mandal, T.K. (2011) Effect of combined therapy of intravenous ceftriaxone and oral polyherbal drug on milk enzyme activity in healthy and mastitic goats. <i>Journal of Applied Biological Research</i> . 14(1) 3.7	3.7	
<b>Datta, B.K.</b> , Mandal, T.K. and Chakraborty, A. K. (2011) Residual effect of Ceftriaxone in black Bengal goats after long term intramuscular administration. <i>International Journal of Pharma and Biosciences</i> . 2(4); 297-307.		3.6
Karmakar, U.K., Datta, B.K., Patra, P. H., Prashant, M., Suman, S., Sar, T.K., Chakraborty, A. K. and <b>Mandal, T.K.</b> (2011). Disposition kinetics of Ceftizoxime in healthy and Mastitic goats after intravenous administration. <i>Pharmacologyonline</i> . 3; 935-946.		0.12



Name of the Article	NAAS rating	Impact factor
<b>Datta B.K.</b> , Mishra A., Singh A., Sar T.K., Sarkar S., Bhattacharya A., Chakraborty A.K., Mandal T.K. (2010) Chronic arsenicosis in cattle with special reference to its metabolism in arsenic endemic village of Nadia district West Bengal India. <i>Science of the Total Environment</i> . 409: 284-288.	7.9	3.19
Kundu B., Soundrapandian C., Nandi SK., Mukherjee P., Dandapat N., Roy S., Datta B K., <b>Mandal TK.</b> , Basu D. Rupnarayan N.(2010) Development of New Localized Drug Delivery System Based on Ceftriaxone-Sulbactam Composite Drug Impregnated Porous Hydroxyapatite: A Systematic Approach for In Vitro and In Vivo Animal Trial. <i>Pharm Res</i> . 27:1659-1676.	4.093	8.1
<b>Sar T.K.</b> , Mandal T.K., Samanta I, Rahaman A, Chakraborty A.(2010). Determination of ceftriaxone in plasma and Ceftizoxime in milk of mastitic cows following single dose intravenous administration. <i>Indian Journal of Animal Science</i> . 80(12).	6.6	
<b>I. Samanta</b> , T.K. Sar, P. Das, A.K. Maji, S.N. Joardar, D.P. Isore. "Single dose ceftaxone therapy in acute mastitis in jamunapuri goats". <i>Indian Journal of Animal Health</i> . (In press)	2.7	

#### G.1.8. Department of Veterinary Surgery & Radiology

Name of the Article	NAAS rating	Impact factor
Sarbani Hazra,* Himangshu Palui, Bhabatosh Biswas, Aditya Konar. Anesthesia for intraocular surgery in rabbits. Scandivenian Journal for laboratory Animal Science. Scand. J. Lab. Anim. Sci. 2011 Vol. 38 No. 2.Pg 81-87.		
Sarbani Hazra*, Himangshu Palui. Grid keratotomy for treatment of atypical presenting indolent corneal ulceration in a boxer. Nigerian Veterinary Journal. Vol. 32(2): 2011; 157 – 159.		
Sarbani Hazra,Himangshu Palui, Geeta Vemuganthi. Comparison of design of intraocular lens versus the material for PCO prevention. International Journal of Ophthalmology. 2012 .5(1):59-63.		
Sarbani Hazra,1 Rajdeep Guha,2 Geram Jongkey,1 Himangshu Palui,1 Akhilesh Mishra,1 Geeta K. Vemuganti,3 Samar K. Basak,4 Tapan Kumar Mandal,1 Aditya Konar2. Modulation of matrix metalloproteinase activity by EDTA prevents posterior capsular opacification. Molecular Vision, 2012; 18:1701-1711.		



### G.1.9. Department of Veterinary Epidemiology & Preventive Medicine

Name of the Article	NAAS rating	Impact factor
B. Bandyopadhyay, C. Guha, U. Biswas and A. Chatterjee, (2010). Seroprevalence of <i>Brucella canis</i> infection in and around Kolkata. <i>India Journal of Veterinary Public Health</i> , 1(2): 220-222.	3.8	
U. Biswas, C.Guha and A.Chatterjee, (2010). Studies on present scenario of avian paramyxovirus (APMV-1) infection in West Bengal. <i>Vet. Vision</i> . 1(2): 10-12.		
A. K. Dhar, C. Guha, U. Biswas., G.C.Chakraborty, A.K.Bera and P.S.Jana (2010). "Therapeutic evaluation of different drugs on Gout in broilers." <i>Indian Vet. J.</i> 87(11): 1151-1153.	6.0	
D. Barman, C. Guha, U. Biswas, S. Pradhan, R.Aich and B. Roy (2010). Pathomorphology of Experimental <i>Trypanosoma evansi</i> Infection in Mice. <i>Environment &amp; Ecology</i> . 28(1) : 38-41.	2.1	
D. Barman, C. Guha, U. Biswas, S. Pradhan, R.Aich and B. Roy (2010). Pathomorphology of Experimental <i>Trypanosoma evansi</i> Infection in Rabbit. <i>Environment &amp; Ecology</i> . 28(1): 42-44.	2.1	
D. Barman, C. Guha, U. Biswas, B. Roy, S. Pradhan and R. Aich (2010). Experimental Trypanosomosis in Laboratory Animals. <i>Environment &amp; Ecology</i> . 28(1A): 425-428.	2.1	
D. Barman, C. Guha, U. Biswas, R. Aich, B. Roy and S. Pradhan (2010). Hematological and Biochemical Changes in Guinepigs experimentally Infected with <i>Trypanosoma evansi</i> . <i>Environment &amp; Ecology</i> . 28(1A): 455-458.	2.1	
D. Barman, A. Chatterjee, C.Guha, U. Biswas, J. Sarkar, T.K.Roy, B.Roy and S. Baidya (2010). Estimation of post-vaccination antibody titre against goat pox and determination of protective antibody titre. <i>Small Ruminant Research</i> . 93: 76-78.	7.5	
T.Saha, C.Guha, D.Chakraborty, B.Pal, U.Biswas, A.Chatterjee, P.Koenig and M.Beer (2010). Isolation and Characterization of BoHV-1 from Cattle in West Bengal, India. <i>Iranian Journal of Vety. Science and Technology</i> . 2(1):1-8.		
T. Saha, C. Guha, D. Chakraborty, U. Biswas, B. Pal, M. Sarkar and A. Chatterjee I (2010), in West Bengal. <i>Indian Journal of Animal Sciences</i> . 80 (10): 1087-88.	6.6	
T. Saha, C. Guha, U. Biswas, D. Chakraborty, T. Sadhukhan and G. C. Chakraborty (2011). Isolation and identification of mycoplasmas from respiratory disease affected broiler birds in West Bengal <i>Indian journal of Animal Sciences</i> 81(11): 41-42.	6.6	



Name of the Article	NAAS rating	Impact factor
D. Barman, A. Chatterjee, C. Guha, U. Biswas, B. Roy, S. Bera and S. Pradhan (2011). Epidemiological investigation of goat pox in West Bengal. <i>Indian J. Vet. Med.</i> <b>31</b> (1) 36-37	4.5	
D. K. Maity, A. Chatterjee, C. Guha and U. Biswas (2012). Pasteurellosis in duck in West Bengal. <i>Explor. Anim. Med. Res.</i> <b>1</b> (2): 119-123.		
Pranjal P. Kalita, G. Bordoloi and U. Biswas (2012). Potency Test of locally isolated lentogenic strain vaccine with commercial F 1 Vaccine of Ranikhet Disease. <i>Environment &amp; Ecology</i> <b>30</b> (1):1-3.	2.1	

#### G.1.10. Department of Veterinary Public Health

Name of the Article	NAAS rating	Impact factor
<b>Indu Sharma, A. Kumar and A.K. Pramanik.</b> (2010). Antibiotic Sensitivity Tests of Aeromonads Isolated from Foods of Animal Origin Including Fish. <i>Assam University Journal of Science and Technology.</i> <b>5</b> (1): 43-47.		
<b>Shahbaz Manzoor Khan, ChanchalDebnath, Amiya Kumar Pramanik,</b> Lihua Xiao, Tomoyoshi Nozaki, SandipanGanguly. (2010). Molecular Characterization and Assessment of Zoonotic Transmission of Cryptosporidium from Dairy Cattle in West Bengal, India. <i>Veterinary Parasitology.</i> <b>171</b> : 41-47.	7.7	2.579
<b>ShahbazManzoor Khan,ChanchalDebnath, Amiya Kumar Pramanik,</b> Lihua Xiao, Tomoyoshi Nozaki, SandipanGanguly. (2011). Molecular Evidence for Zoonotic Transmission of <i>Giardia doudenalis</i> Among Dairy Farm Workers in West Bengal, India. <i>Veterinary Parasitology.</i> <b>178</b> : 342-345.		
<b>C. Debnath, M. Biswas, M. Majhi, A. K. Pramanik and S. Biswas.</b> (2011). A Study on Microbiological Quality of Chicken and Pork Sausages from in and Around of Kolkata. <i>Indian Journal of Veterinary Public Health.</i> <b>2</b> (1): 86-90.	7.7	2.579

#### G.1.11. Department of Veterinary & Animal Husbandry Extension Education

Name of the Article	NAAS rating	Impact factor
<b>Lawrence, C. and Ganguli Debasis</b> (2011). Adoption behavior of dairy farmers in Tamilnadu. <i>Indian Journal of Animal Health.</i> <b>50</b> (2):5-10.		





Name of the Article	NAAS rating	Impact factor
<b>Lawrence, C. and Ganguli Debasis (2011).</b> Knowledge level of dairy farmers towards selected animal husbandry practices in Tamil Nadu. <i>Indian Journal of Animal Health</i> . 50(2):11-14.		
<b>Lawrence, C. and Ganguli Debasis (2011).</b> Determinants of Entrepreneurial behavior of dairy farmers. In Proc. 6th National Extension Education Congress, Dec. 17-19,2011 at ICAR Research Complex for Goa, Goa.		
<b>Ganguli Debasis; Dana,S.S. and Lawrence, C.(2011).</b> Factors affecting Entrepreneurial behavior of dairy farmers: A study in Tamil Nadu state of India In Proc. International Conference on Innovative approaches for Agricultural Knowledge Management: Global Extension Experiences. November 9-12,2011,New Delhi, India.		
<b>Ganguli, Debasis (2011). Livestock Extension and Technology Transfer: A paradigm shift. In proc. XX Annual Conference SAPI and International Symposium on Advances in physiologic research for sustainable development of Livestock and poultry production. November 2-4, 2011.WBUAFS, Kolkata.</b>		
<b>Lawrence, C. and Ganguli Debasis (2011).</b> Contribution of socio economic profile characteristics of farmers towards their entrepreneurial behavior. In proc. National Seminar on Innovations in Farming Systems Research and Extension for inclusive development. November 24-25,2011.TANUVAS, Chennai.		

#### G.1.12. Department of Veterinary Gynaecology & Obstetrics

Name of the Article	NAAS rating	Impact factor
S. Basu, R.M. Mishra, S.K. Bandhyopadhyay and D.K. De (2011). Vaginal Cytology in different phases of Estrus Cycle in Bitch. <i>Indian Journal of Canine Practice</i> . 3(1), 29-31.		
Dipyaman Sengupta, <b>Siddhartha Basu</b> and Debasis Mazumdar (2011). Blood Progesterone level during Estrous cycle in Garole ewes and the Luteolytic effect of Oxytocin administered on different days of Estrus cycle, pregnancy and Diclofenac sodium mediated extended Luteal phase. <i>Agricultural Research Communication Centre</i> .		
Dipyaman Sengupta and <b>Siddhartha Basu</b> (2012) Treatment with progesterone, estradiol and oxytocin improves conception and early diagnosis of pregnancy in Black Bengal goat. <i>Veterinary World</i> (5):269-273.	4.00	



Name of the Article	NAAS rating	Impact factor
A new sperm agglutinin factor from marine snail <i>Telescopium telescopium</i> . An evaluation with goat ( <i>Capra hircus</i> ) cauda epididymal spermatozoa. S. Maji, <b>U. Datta</b> and M. L. Hembram. <b>Iranian Journal Reprod. Med.</b> , Winter 2010, 8 (1), 10-17.		
Sperm Morphology and Natural Biomolecules from Marine Snail <i>Telescopium telescopium</i> : a Phylogenetic Perspective Uttam Datta; Manik Lal Hembram; Subhasis Roy & Prasenjit Mukherjee. <b>Int. J. Morphol.</b> , 28(1): 175-182, 2010.		
Morphological study of the Cytoplasmic Droplets as an index of sperm maturation in Black Bengal Buck ( <i>Capra hircus</i> ). <b>U. Datta</b> , S. K. Bandopadhyay and M. L. Hembram <i>Int.J.Morphol.</i> 2010, 28(1), 327-332.		
Cell surface changes associated with in-vitro capacitating and acrosome reaction of goat epididymal sperm by a marine bio-active compound from the snail <i>Telescopium telescopium</i> . S. Maji, <b>U. Datta</b> and M. L. Hembram <i>VETERINARSKI ARHIV.</i> 2010, 80(5), 561-570.		0.31
Potential future applications of spermatheca extract from the marine snail <i>Telescopium telescopium</i> . Subhasis Roy, <b>U. Datta</b> , Debaki Ghosh, Partha sarathi Dasgupta, Prasenjit Mukherjee, Uttio Roychowdhary <i>Turk. J. Vet. Anim. Sci.</i> 2010; 34(6): 533-540 (doi:10.3906/vet-0902-20)		
New Insight in Preservation of In-situ Caprine Cauda Epididymal Spermatozoa at -20°C: Plausible Implications for the Conservation of Biodiversity. P. Kumar, <b>U. Datta</b> , M. L. Hembram and R. Dasgupta <i>International Journal of Biotechnology and Bioengineering Research.</i> Volume 2 Number 3 (2011) pp. 377-392		
D. Sengupta, <b>Kalyani Ray</b> and U. Datta. Spermatozoan maturation in the epididymis of sheep. <i>Environment &amp; Ecology</i> 2011; 29(1): 159-163.		
Sheet Swapan; Ghosh, B.B.; Nandi, P.P.; Batabyal, S.; Rana, T. and Nandi, A. (2010) Biochemical and mineral profile of follicular fluid of Black Bengal. <i>Indian Vet. J.</i> 87(6):561-562	6.0	
Podder, S., Nandi, P.R. and Bar, N (2010) <i>Vets Vission.</i> 1(2):30-41.		
Sengupta, D.; Basu, S.; Nandi, P.R.; Ghosal, S. and Mazumdar, D. (2011). <i>Ind. J. of Animal Health</i>	2.9	
Lokesh Das and <b>Kalyani Ray</b> . Lotus somus reflexus syndrome as a cause of dystocia in a Goat. <i>Ind. J. Anim. Hlth.</i> 2011; 50(2): 49-50	2.9	



Name of the Article	NAAS rating	Impact factor
Utpal Banerjee and <b>Kalyani Ray</b> . Clinical efficacy of herbal heat inducer and mineral supplementation for inducing fertility in anestrus crossbred cows. Submitted to <i>J. Interacademia</i> 2012 16(1): 137-141.	3.0	
<b>Kalyani Ray</b> and B B Ghosh. Correlation between hypo-osmotic swelling test (HOST) with various physico- morphological semen characters in Sahiwal and Red Sindhi bull semen. <i>Ind. J. Anim. Hlth.</i> 2011 50(2):38-42	2.9	
<b>Kalyani Ray</b> and Utpal Banerjee. FERTILITY PARAMETERS AND BLOOD BIOCHEMICAL PROFILE OF HOLSTEIN FRIESIAN x JERSEY CROSSBRED COWS TREATED WITH HERBAL HEAT INDUCER AND MINERAL MIXTURE COMBINATION FOR INDUCTION OF POSTPARTUM OESTRUS. <i>Animal Science Reporter</i> , 2012, 6 (3), 109-115.	3.0	
Giri, Dr. S.C. <b>Roy, Dr. S.K.</b> , Mishra, Dr. P.K., Panda, Dr. N. and Behera. Dr. P.C. (2010). Efficiency of coconut water as poultry semen extender. <i>I.V.J.</i> 87:460-462.	6.0	
Das, B., Batabyal, K and <b>Roy, S.K.</b> (2010) –Isolation, Identification and anti-biogram of <i>Salmonella spp.</i> From poultry. <i>Environment &amp; ecology</i> . 28(4): 2266-67.		
Upadhyay, P.K., <b>Ray, S.K.</b> , Poddar, S, Mukhopadhyay. S.K. and Ganguly, S. (2010). Study on histopathological changes in testes and epididymides with relation to epididymal sperm morphology of subfertile bulls. <i>Journal of Pharmaceutical and Biomedical Sciences</i> . 4, (04): 1-4.		

#### G.1.13. Department of Livestock Products Technology

Name of the Article	NAAS rating	Impact factor
S.K.Das, P.P.Pazhaniandi. V.K.Tanwar, S.Biswas and A.Khan (2011). Effect of sorghum flour and finger millets as fat replacers preparing low cost chicken investigation on some physical and sensory properties of chicken patties. <i>Fleisch Wirtschaft, International Journal for meat production, processing and research</i> . 26: 64-68.		
Debasish Bhattacharyya, Mita Sinhamahapatra and Subhasish Biswas (2013). Effect of packaging material & methods on physical properties and food safety of duck sausage. <i>International Journal of Development Research</i> . 3 (05): 032-040		
Arun K.Verma, V.Rajkumar, Rituparna Banerjee, S.Biswas and Arun .K.Das (2013). Guava ( <i>Psidium guajava</i> L.) powder as anti oxidant dietary fibre in sheep meat nuggets. <i>Asian Australas.J.Anim.Sci.</i> 26 (6): 886-898.		



## G.2. RESEARCH PUBLICATIONS OF FACULTY OF FISHERYSCIENCES

### G.2.1. Department of Aquatic Environment Management

Name of the Article	NAAS rating	Impact factor
<b>R.K.Trivedi.,</b> Papri R. Das., <b>B.K.Das., S.K.Rout.</b> and K.Mukhopadhyay (2010). Social impact assessment (SIA) of certain coastal aquaculture projects of West Bengal. <i>J. Inland Fish. Soc. India</i> , 2010, 42(2): 35-41.	4.3	4.3
Das, R. and <b>Das, B. K.</b> (2010). Concept Attainment Model versus Traditional Model of teaching for Life Science in relation to scholastic achievements for pupils of Bankura, an educationally backward district of West Bengal. <i>J. INTERACADEMICA</i> , 2010, 14(4): 554-560.	3.0	3.0
Das, R. and <b>Das, B. K.</b> (2010). Relative effectiveness of Concept Attainment Model and Traditional Model of teaching in Life Science for urban boys and girls in the district of Nadia, West Bengal. <i>J. INTERACADEMICA</i> , 2010, 15 (1): 141-147.	3.0	3.0

### G.2.2. Department of Aquatic Animal Health

Name of the Article	NAAS rating	Impact factor
Pankaj Kumar and Abraham, T. J. 2012. Effect of sanitizers on planktonic <i>Edwardsiella tarda</i> isolated from Asian stinging catfish <i>Heteropneustes fossilis</i> (Bloch 1794). <i>J. Aquat. Food Pro. Tech.</i> , 21(2): 134-146. ISSN: 1547 0636	NA	0.481
Abraham, T. J. 2011. Food safety hazards related to emerging antibiotic resistant bacteria in cultured freshwater fish of Kolkata, India. <i>Adv. J. Food Sci. Technol.</i> , 3(1): 69-72. ISSN: 20424868	NA	NA
Abraham, T. J., Dasgupta, A. and Nandi, A. 2011. A survey on the occurrence of diseases in commercial gold fish <i>Carassius auratus</i> farms of West Bengal. <i>Wesleyan J. Res.</i> , 4(1): 22-27. ISSN: 09751386	NA	NA
Bera, A. Joardar, S. N., Abraham, T. J., and Batabyal, S. 2010. Dynamic changes in specific immune-effector activities in <i>Aeromonas hydrophila</i> sensitized <i>catla</i> , <i>Catla catla</i> (Hamilton). <i>Indian J. Comp. Microbiol. Immunol. Infect. Dis.</i> , 31(1&2): 5-10. ISSN: 09709320	NA	NA
Ghosh, S., Sasmal, D. and Abraham, T. J. 2010. Microcosm evaluation of indigenous microflora of traditional shrimp farming system as bioremediators. <i>Indian J. Fish.</i> , 57(1): 97-101. ISSN: 05372003	4.9	NA





Name of the Article	NAAS rating	Impact factor
Abraham, T. J., Sil, S. K. and Vineetha, P. 2010. A comparative study of the aquaculture practices adopted by fish farmers in Andhra Pradesh and West Bengal. <i>Indian J. Fish.</i> , 57(3): 41-48. ISSN: 05372003	4.9	NA
Abraham, T.J., 2012. Emerging food safety biohazards from West Bengal freshwater aquaculture. In: Souvenir. National symposium on Veterinary Medical Sciences on Health, Environment and Food Security and 42 <sup>nd</sup> Veterinary Reunion. 10 – 11 January, 2012. Faculty of Veterinary and Animal Sciences, West Bengal University of Animal and Fishery Sciences, Kolkata, pp: 29-38.		
Trivedi, R.K., Abraham, T.J., Krishnan, P. and Nandeesh, M. C., 2011. Regulating fisheries education in India: issues and strategies. In: Souvenir. Expert Consultation on Revitalizing Indian Fisheries Education to Meet 21 <sup>st</sup> Century Aspirations. 08-10 May 2011, Fisheries College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Thoothukudi, pp: 102-107.		
Dash, G., Yonzon, P. and Majumder, D. (2012). The haematological response of <i>Labeo rohita</i> (Hamilton) to the changes in acclimation temperature. <i>The Indian Vet. J.</i> , 89(6): 51-53	6.0	NA
Chanda, M, Paul, M, Maity J, Dash, G. and Gupta, S.S. (2011), The use of antibiotics and disinfectants in ornamental fish farms of West Bengal, <i>Indian J. Nat. Sci. Biol. Med.</i> 2:139-140.	NA	2.318
Dash, G., Yonzon, P, Chanda, M. and Paul, M. (2011). Histopathological changes in <i>Labeo rohita</i> (Hamilton) fingerlings to various acclimation temperature. <i>Chron Young Sci.</i> 2(1): 29-26.	NA	1.647
Chanda M., Paul, M., Maity J., Dash, G. Sengupta, S. and Patra, B.C. (2011). Ornamental Gold Fish, <i>Carassius auratus</i> and related parasites in three districts of West Bengal, India, <i>Chron Young Sci.</i> 2(1): 51-53	NA	1.647
Paul, M., Chanda M., Maity J., Sengupta, S., Patra, B.C. and Dash, G. (2011). The use of antibiotics and disinfectant in freshwater prawn <i>Macrobrachium rosenbergii</i> in North and South 24 Parganas districts of West Bengal, <i>Chron Young Sci.</i> 2(1): 55-58	NA	1.647
Paul, M., Chanda M., Maity J., Sengupta, S., Patra, B.C. and Dash, G. (2010) Parasitic prevalences in freshwater prawn <i>Macrobrachium rosenbergii</i> in North and South 24 Parganas districts of West Bengal, <i>Chron Young Sci.</i> 1:48-50	NA	1.647



Name of the Article	NAAS rating	Impact factor
Sahu, B., Nayak, A.K., Singh, S.D., Behera, B.K. and Dash, G. (2010). Preliminary characterization of multiple antibiotic resistant <i>Escherichia coli</i> isolated from fish processing plants. <i>Asian J. of Microbiol. Biotech. Env. Sc.</i> 12 (3): 603-608.	2.6	0.034
Dash, G., and Bandyopadhyay, P.K. (2011). Prevalence and seasonal abundance of Protozoan parasites in Penaeid shrimp ( <i>Penaeus monodon</i> ) in high saline bheries of West Bengal, "Proceedings of 22 <sup>nd</sup> National Congress of Parasitology", 2011 held in Oct-30 to Nov-01-2011 at University of Kalyani, Kalyani, W B pp. 64-67		
Dash, G., Parida S.K., and. Udagata, S.K., (2010). Prevalence and occurrence of Argulosis in carps with special reference to the water quality parameters in the low saline bheries of West Bengal, <i>Proceedings of 8<sup>th</sup> Indian Fisheries Forum</i> , 2008, Published by IFSI and AFSIB, Mangalore India Page. 262-270		
Parida S.K., Dash, G., and. Udagata, S.K., (2010). Histopathological and Haematological alterations of carp ( <i>Labeo rohita</i> ) infected with Argulosis in freshwater bheries of West Bengal, <i>Proceedings of 8<sup>th</sup> Indian Fisheries Forum</i> , 2008, Published by IFSI and AFSIB, Mangalore India Page. 271-279		

### G.2.3. Department of Fishery Engineering

Name of the Article	NAAS rating	Impact factor
Talwar, N.A. Mondal A and Hanumanthappa, B. 2010. Observations on by-catch in newly designed demersal trawl. <i>Indian Journal of Animal Health</i> . Vol. 49 (2):15-19.		
Joshita O Devi, Nagesh T.S and Talwar, N.A. 2011. Growth and Mortality of <i>Pampus arenteus</i> (Euphrasen) from Kakdwip Estuarine region of West Bengal, India, <i>Environment &amp; Ecology</i> . Vol: 9(3):1166-1171.		
Mazumdar, B, Nagesh, S and Talwar, N. A. 2012. Growth and Exploitation Level of Black Pomfret, <i>Parastromateus niger</i> (Bloch, 1795) off West Bengal Coast. <i>Fish. Tech.</i> Vol.:49(1):99-102		



### G.3. RESEARCH PULICATION OF FACULTY OF DAIRY TECHNOLOGY

#### G.3.1. Department of Dalry Chemistry

Name of the Article	NAAS rating	Impact factor
D.Ghosh,P.K.Ghatak, P.R.Ray and A.K.Bandyopadhyay (2010) . Qiuality of Jalbhara marketed in and around Kolkata. <i>Indian J. Anim. Health</i> . Vol 49		
P. R. Ray, P.K.Ghatak and A.K.Misra (2010). Integrated and Sustainable dairying: A Tool for Poverty Eradication and Rural Prosperity. Proc. National Seminar on Integrated Rural development and Management : Issuea , Strategies and Policy Option. December17-18, Ramkrishna Mission Ashram, Narendrapur, Kolkata-700103		
P. R. Ray, P. K. Ghatak and A.K.Bandyopadhyay (2011). Preservation of raw milk by Banana (Musa Paridasiaca) Pseudostem juice. Proc. XXXIX th Dairy Industry Conference. 4-6 <sup>th</sup> February , Kokata		
P.R.Ray, A.K.Bandyopadhyay and P.K.Ghatak (2011). Recent Trends in Milk Processing Technique. Proc. National Seminar on Current Technological Challenges in Food Processing Specially Emphasizing Food Irradiation' from June 25-26, 2011 at Jadavpur University , Jadavpur, Kolkata		
P.R.Ray. P.K.Ghatak. and A.K.Bandyopadhyay (2012). Preservation of cow milk by Banana (Musa paridasiaca) pseudostem juice. Proc. 19 <sup>th</sup> State Science & Technology Congress held at Kolkata on 4-5 March, 2010		
C.Chakraborty, A.K.Bandyopadhyay and P.K.Ghatak (2012). Studies on the antioxidant properties of different types of laboratory made herbal Sandesh. Proc. 19 <sup>th</sup> State Science & Technology Congress held at Kolkata on 4-5 March, 2010.		

#### G.3.2. Department of Dairy Microbiology

Name of the Article	NAAS rating	Impact factor
Maity T.K. and Misra A.K. (2010) Hypocholesterolemic effect of <i>Lactobacillus casei</i> isolated from <i>dahi</i> (Indian yoghurt) in albino rats. <i>Milchwissenschaft</i> . 65(2) 140-143	6.9	1
Maity T.K.Rakesh kumar and Misra A.K. (2011) Prevalance of enteropathogenic Escherichia coli isolated from chhana based Indian sweets in relation to public health. <i>Indian Journal of Microbiology</i> 50(4): 463-467.	7.5	1



Name of the Article	NAAS rating	Impact factor
Rakesh kumar , Binita Rani, <b>Maity T.K</b> and Misra A.K. (2010) Studies on the effect of level of total solids and type of culture on the status of $\beta$ -galactosidase activity during production of cow milk dahi. <i>Journal of Interacademia</i> 14(1), 64-76	3.0	0
Rakesh kumar , Binita Rani, <b>Maity T.K</b> and Misra A.K. (2010) Effect of level of total solids and type of culture on the status of titratable acidity during production of Cow Milk Dahi. <i>Journal of Interacademia</i> . 14(2),218-225	3.0	0
Paul, S.C., <b>Sarkar, S.P.</b> , Maiti, P. and Mondal, M. (2012) Development of Whey Based Spots Drink. <i>Beverage &amp; Food World</i> . 39 (7): 30-32		

### G.3.3. Department of Dairy Technology

Name of the Article	NAAS rating	Impact factor
Singh, V.P., Sanyal, M.K., Dubey, P.C. and Mendiratta, S.K. (2011). Quality assessment of vacuum packaged chicken snacks stored at temperature, <i>Current Research in Poultry Science</i> , 1 (2): 66 – 76.		
Singh, V.P.; Sanyal, M.K.; Sachan, N. and Kumar, V. (2011). Quality evaluation of rice flour snacks stored at ambient temperature under aerobic and vacuum packaging. <i>Beverage &amp; Food World</i> . 38 (9): 54 – 56.	7.2	0.498
Sanyal, M.K.; Pal, S.C.; Gangopadhyay, S.K.; Dutta, S.K.; Ganguli, D.; Das, S. and Maiti, P. (2011). Influence of stabilizers on quality of sandesh from buffalo milk. <i>Journal of Food Science and Technology</i> . 48 (6): 740 – 744.		
Singh, V.P., Sanyal, M.K., Sachan, N. and Kumar, V. (2011). Quality evaluation of rice flour snacks stored at ambient temperature under aerobic and vacuum packaging, <i>Beverage &amp; Food World</i> , 48 (6): 54 – 56.		
Singh, V.P., Sanyal, M.K., Dubey, P.C., Sachan, N. and Kumar, V. (2012). Chicken snacks as affected by storage conditions under aerobic and vacuum packaging at 30±20C, <i>African Journal of Food Science</i> , 5 (11): 620 – 625.		
Gantait, S.; Paul, S.C.; Sanyal, M.K. and Bag, S.K. (2010). Irradiation preservation. <i>Beverage &amp; Food World</i> . 37 (11): 49 – 50.		
Sanyal, M.K. (2010). Pitfalls in the design of MCQs, Souvenir, 11 <sup>th</sup> Re-Union, Past & Present Dairy Students, BCKV and WBUAFS, Faculty of Dairy Technology, West Bengal University of Animal & Fishery Sciences, Mohanpur, Nadia, West Bengal, Dec.24.		



Name of the Article	NAAS rating	Impact factor
Paul, S.C.; Sarkar, S.P.; Maiti, P. and Mandal, M. (2012). Development of whey based sports drink. <i>Beverage &amp; Food world</i> . 39 (7): 30 – 32.		
Sanyal, M.K.; Pal, S.C.; Gangopadhyay, S.K.; Dutta, S. and Maiti, P. (2011). Quality of pantoos as affected by dipping of chhana in whey, Proc. XXXIX Dairy Industry Conference, <i>Indian Dairy Association (East Zone)</i> , Eastern Zonal Cultural Center, Salt Lake, Kolkata. DPP: 10, P 122.		
Gantait, S. and Sanyal, M.K. (2011). Influence of different thickeners on the quality of fish-whey soup. <i>ibid</i> . DPP: 11, P 123.		
Moktan, S. and Sanyal, M.K. (2011). Quality of skimmed milk lollipop as influenced by different types of starch. <i>ibid</i> . DPP: 18, P 126 – 127.		
Gangopadhyay, S.K.; Kumar, A. and Sanyal, M.K. (2011). Rheological character of soy rasogolla from soy slurry. <i>Ibid</i> . QSM: 07, P 144.		
Sanyal, M.K.; Sarkar, S.P.; Maiti, P. and Dutta, S. (2011). Heavy metals and micronutrients in milk products of Hooghly district in West Bengal, Proc. 18th West Bengal State Science & Technology Congress, <i>Ramakrishna Mission Residential College</i> , Narendrapur, West Bengal, 28 <sup>th</sup> Feb. – 1 <sup>st</sup> March, 3DT (1), P 284 – 285.		
Moktan, S. and Sanyal, M.K. (2011). Influence of different levels of cane sugar on the quality of skimmed milk lollipop. <i>ibid</i> . 3DT (2), P 286 – 287.		
Sen, D.C. (2010) Production and health beneficial roles of fermented milk foods. Paper presented in the Refresher Course on Recent Advances in Fermentation Technology. Department of Food Technology and Biochemical Engineering, Jadavpur University, Kolkata.		
Sen, D.C. (2011) Ghee: A unique health food. Paper presented in the UGC Sponsored National Seminar on Food Processing: Science, Technology & Self employment. January 28 & 29. Organised by Prabhat Kumar College, Contai in Collaboration with S.S.B. College, Egra. Purba Medinipur.		
Sen, D.C. (2011) Cheese: At a glance. Paper presented in the UGC – Academic Staff College, Refresher Course on Advance of Biotechnology in Food and Fermentation. Department of Food Technology and Biochemical Engineering, Jadavpur University, Kolkata.		



#### G. 4. RESEARCH PUBLICATIONS OF DIRECTORATE OF RESEARCH, EXTENSION & FARMS

Name of the Article	NAAS rating	Impact factor
<b>Chand, B. K.</b> , Singh, M. K. and Mandal, B. (2011). Studies on the breeding of an exotic silurid fish, <i>Pangasius sutchi</i> (Flower) using different inducing agents. <i>Journal of Applied Aquaculture</i> , <b>23</b> : 32-40.		
<b>Chand, B. K.</b> , Mandal, B. and Patra, B. C. (2011). Application of Participatory rural appraisal technique for critical analysis of micro-farming situations in traditional pond fishery of a selected village in West Midnapore district. <i>Indian J Biol Sc.</i> , <b>17</b> : 6-14.		
<b>Chand, B. K.</b> , Trivedi R K, Biswas A, Dubey S K and Beg, M. M. Study on Impact of saline water inundation on freshwater aquaculture in Sundarban using risk analysis tools. <i>Explor. Anim. Med. Res.</i> (Accepted)		
Dubey, S. K., Choudhury, A. and <b>Chand, B. K.</b> Ecobiological study on burrowing mud lobster <i>Thalassina anomala</i> (Herbst, 1804) (Decapoda:Thalassinidea) in the intertidal mangrove mudflat of deltaic Sundarbans. <i>Explor. Anim. Med. Res.</i> (Accepted)		
Das, S; Biswas, B.K.; Biswas, A. and Pradhan, N.R. (2011). Study on effectiveness of four fish species in mosquito larvicidal activity and their survivality in drain water. <i>J. Interacad.</i> 15(4) : 731-734.	3.0	
Biswas, B.K.; Das, S; Dhara, K.C.; Biswas, A. and Pradhan, N.R. (2011). Enumeration of bacterial count particularly coliform in house hold aquarium, pelleted fish feed and untreated tap water used for those aquariums. <i>Inter. J. Adv. Biol. Res.</i> 1(1) : 61-62.		
Das, S; Biswas, B.K. and Biswas, A. (2012). Studies on accumulation of five heavy metals in fish tissues collected from fish ponds of Haringhata Area (Nadia) and their seasonal variation. <i>Asian J. of Micro. Biotech. &amp; Environ. Sc.</i> 14(3) : 381-384.	2.6	
Biswas, B.K.; Das, S and Biswas, A. (2012). Estimation of microbial quality of pond water of Nadia district West Bengal with special reference to <i>E.Coli</i> . <i>Poll. Res.</i> 31(4) : 11-12.	3.3	
Das, S; Biswas, B.K. and Biswas, A. (2012). Role of four aquatic weeds on cadmium toxicity : A study on phytoremediation. <i>J. Interacad.</i> 16 (2A) : 478-481.	3.0	
Das, S; Biswas, B.K. and Biswas, A. (2012). Effect of curcumin (Turmeric) and Azadirachta (Neem) on cadmium accumulation in whole body of fish <i>Danio rerio</i> . <i>Poll. Res.</i> 31(4) : 29-31.	3.3	



**H**
**HUMAN RESOURCE DEVELOPMENT (HRD)**
**H.1. PARTICIPATION OF THE TEACHERS / SCIENTISTS/ OFFICERS IN THE SEMINAR, SYMPOSIUM, WORKSHOP, TRAINING PROGRAMMES ETC.**
**H.1.A. FACULTY OF VETERINARY & ANIMAL SCIENCES**
**H.1.A.1. Department of Animal Genetics & Breeding**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. S. Taraphder, Lecturer	Short course training on "Recent Developm- ent in Nano Science and Technology"	Jadavpur University, Salt Lake Campus, Kolkata-98, West Bengal.	13/09/10- 4/10/10 21 Days
	Training Programme on "Data Analysis Using SAS"	CIFRI, Barrackpore , West Bengal	February 14- 19, 2011 7 Days
	Subject Training on "Advances in Animal Bioinformatics	NBAGR, Karnal-132001, Haryana	February 21- March 3, 2012 12 Days

**H.1.A.2. Department of Animal Nutrition**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Prof. G. Samanta	European Poultry Congress, Tours	France	23.08.2010 to 27.08.2010
Prof. T. K. Ghosh, Dr. S. Haldar	Feed Quality Conference	Bangkok	25.07.2011 to 26.07.2011
Prof. T.K. Ghosh, Prof. P. Biswas, Dr. S. Haldar	Bi- Annual Conference of Animal Nutrition Association	Bhubaneswar	17.12.2010 to 19.12.2010



### H.1.A.3. Department of Veterinary Parasitology

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Prof. J. D. Ghosh	22 <sup>nd</sup> National congress of IAAVP and National Symposium On "Integrated Research Approach in Veterinary Parasitology: From Basic To Molecular Techniques"	DUVASU, Mathura	15-17 March, 2012 3 Days
	21 <sup>st</sup> National Congress of Veterinary Parasitology On "Applications of Research in Parasitology for End Users"	Mumbai Veterinary College	5-7 January, 2012 3 Days
Prof. J. D. Ghosh & Dr. S. Baidya (Asth. Prof.)	22 <sup>ND</sup> National congress of Parasitology on "Advancement in Parasitology: A Novel Approach Towards a Disease Free World"	University of Kalyani	Oct.30- Nov.1 3 Days
Dr. S. Baidya (Asth. Prof.)	"CPCSEA Eastern Zonal Workshop on Laboratory Animal Experimentation"	R. G. Kar Medical College, Kolkata.	04.05.12 1 Day
	18 <sup>th</sup> West Bengal State Science & Technology Congress	Ramakrishna Mission Residential College	28.02.11 – 01.03.11 2 Days
	UGC Sponsored Orientation Programme	Jadavpur University	11.07.2011 – 06.08.11 27 Days
	A National Training programme on Bio-security in Animal Health Coupled with Infectious and Xenobiotic Residues	W.B.U.A.F.S. Kolkata	01.12.11 – 15.12.11 15 Days
	Data Analysis Using SAS	Director of Water Management, Bhubaneswar and NAIP at Bidhan Chandra Krishi Viswavidyalaya, West Bengal.	13.02.12 – 18.02.12 6 Days



**H.1.A.4. Department of Veterinary Bio-Chemistry**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. Subhasis Batabyal Senior Lecturer Dr. Saibal Chattopadhyay Senior Lecturer	Participated in the 17th State Science and Technology Congress & presented paper.	WBUAFS, Belgachia	March 4-5, 2010 2 Days
Dr. Saibal Chattopadhyay Senior Lecturer	Acted as co-chairman of Scientific session in the 18th State Science and Technology Congress	Ramkrishna Mission, Narendrapur	February 28, 2011 1 Day
Dr. Subhasis Batabyal Senior Lecturer	Participated on National Scientific Seminar on "Role of Veterinarians in Social and livelihood development"	WBUAFS, Belgachia	January 2, 2010 1 Day
	Participated in the 18th State Science and Technology Congress & presented paper.	Ramkrishna Mission, Narendrapur	February 28, 2011 1 Day
	Participated on 20th Annual Conference of Society of Animal Physiologists of India and International Symposium on Advances in Physiologic Research for Sustainable Development of Livestock and Poultry Production	WBUAFS, Belgachia	November 2 – 4, 2011 3 Days
	Participated on 35 <sup>th</sup> Annual Congress of ISVS and International Symposium on Nanobiomaterials in Biomedical Research: Their Application in Veterinary Surgery	Swabhumi, Kolkata	November 11 – 13, 2011 3 Days
	Participated and presented paper on 99th Indian Science Congress	KIIT University, Bhubaneswar.	January 2-7, 2012 6 Days

**H.1.A.5. Department of Veterinary Microbiology**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
	Participated as trainer in the training programme – 'Integrated fish cum duck farming'	Faculty of Fishery Sciences, WBUAFS, Cnalgaria	14.05.2010 1 Day



Dr S. N. Joardar	Participated as trainer in 'Training for Veterinarians' (Diagnostic procedure of different diseases in field practice)	New Collectorate building, Howrah	19.5.2010 1 Day
	Participated as speaker in the training programme on 'Recent Advancement in Animal Husbandry Management' (Immunobiology of Microbial Diseases in Animals and Birds-Recent Trends)	Parisad office, Purulia	9.6.2010 1 Day
	Participated as trainer in the summer training programme on 'Immunobiochemical Techniques' (Immunoelectrophoresis and ELISA)	Faculty of VAS, WBUAFS, Belgachia	23.7.2010 1 Day
	Participated as panelist in the panel discussion on 'Use of Antibiotic Growth Promoter (AGP) in Food Animals'	Faculty of VAS, WBUAFS, Belgachia	30.11. 2010 1 Day
	Participated as trainer in the training programme - 'Integrated fish cum duck farming'	Faculty of Fishery Sciences, WBUAFS, Chakgaria	28.12.2010 1 Day
	Participated in the 'National Science Day Programme-2011'	Jadavpur University campus	27.2.2010 1 Day
	Participated in 18 <sup>th</sup> State Science and Technology Congress	Narendrapur RKM college, Narendrapur	28.2.2011 -1.3.2011 2 Days
	Participated in the 11th Veterinary Congress	Apollo College, Jaipur	11.2.2011- 12.2.2011. 2 Days
	Participated as trainer in the training programme- 'Hands on training on disease Management and diagnostic in Brackish water Aquaculture' (In vitro Diagnostic Techniques for Fish Diseases)	Kakdwip, 24 pgs (S). Org. by Kakdwip Research Centre, CIBA (ICAR).	12.5.2011 1 Day
	Participated as trainer in the summer training programme on 'Immunobiochemical Techniques' (Immunoelectrophoresis and ELISA)	Faculty of VAS, WBUAFS, Belgachia	22.7.2011 1 Day
	Participated as invited speaker in 'National Training Programme on Biosecurity in Animal Science'	org. by NAIP scheme (ICAR), WBUAFS	14.09.2011 1 Day
	International Symposium on "Advances in Physiologic research for sustainable development of livestock and poultry production" and XX Annual Conference of SAPI.	WBUAFS campus, Kolkata	2-4 Novem ber. 2011 3 Days





	Participated as speaker in 'World rabies day' Programme	Org. by Directorate of Animal Resources & Animal Health, Govt. of W.B.	28.09.2011 1 Day
	Participated as Invited Speaker in 'One-day seminar on Aquaculture and Probiotics',	organized by Department of Zoology, University of Burdwan	07.12.2011 1 Day
	Invited as guest speaker in 'Hands on Training on Disease Management and Diagnostics in Brackish water Aquaculture'	org. by Kakdwip Research Centre, Central Brackish water Aquaculture (ICAR)	15.02.2012 1 Day
	Participated in 19 <sup>th</sup> State Science and Technology Congress	Saha Institute of Nuclear Physics, Kolkata	2.3.2012 -3.3.2012 2 Days
	Participated in CPCSEA eastern Zonal Workshop on Laboratory Animal Experimentation,	Org. jointly by R.G. Kar Medical College and W.B.U.A.F.S	04.05.2012 1 Day
<b>Dr I. Samanta</b>	Acted as resource person in Farmer's Training on 'Duck Diseases and remedy' organized by NGO (Vivekananda Welfare Society) and Department of Animal Nutrition, WBUAFS	Chandanpiri, Namkhana, West Bengal.	23.04.2011 1 Day
	Television Talk Show for farmers in "Health care of livestock during summer"	Krishidarshan Programme, Doordarshan	18.05.10 1 Day
	Television Talk Show for farmers in "Management of livestock during rainy season"	Krishidarshan Programme, Doordarshan	29.06.10 1 Day
	Acted as resource person in Farmer's Training on 'Poultry Farming'	Vivekananda Institute of Biotechnology, Nimpith.	24.06.2011 1 Day
	17 <sup>th</sup> West Bengal State Science & Technology Congress	WBUAFS	4-5 th March 2010, 2 Days
	18 <sup>th</sup> West Bengal State Science & Technology Congress	R. K. Mission Residential College, Narendrapur, Kolkata.	28 <sup>th</sup> Feb-1 st March 2011 2 Days
	Farmer's Training on 'Infectious Goat Diseases'	Mohanpur Campus, WBUAFS	21.07.2011 and 26.08.2011 2 Days
	19 <sup>th</sup> West Bengal State Science &	Saha Institute of	2.3.12-3.3.12



	Technology Congress	Nuclear Physics, Kolkata	2 Days
	All India Radio Talk Show for farmers in "Management of livestock during rainy season"	Akashbani, Kolkata	15.05.12 1 Day
Dr. D. P. Isore	Participated in Farmers' training, health camp, vaccine camp	Gosaba, Lodhashuli, Medinipur (W)	1 Day

#### H.1.A.6. Department of Veterinary Pathology

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. S.K. Mukhopadhyay, Associate Professor	International Conference on Fundamental and Applications of Nanoscience and Technology	Kolkata	2010
	IV International Seminar on The Challenges Ahead	Mathura, U.P.	February 17-18, 2 Days
	National seminar on Recent reforms in education in India: Trends and challenges	Rabindra Bhavan, University B.T. college, Cooch Behar	October 1-2, 2010 2 Days
	National conference on continuing education in toxicologic pathology-Reproductive system	STPI Bangalore	October 29-31, 2010 3 Days
	Eastern Regional Conference on Global Warming and Future of domestic animal wealth of Sunderban Islands	Gosaba Island, Sunderban	December 19-21, 2010 3 Days
	Sustainable Animal Production to enhance and ensure livelihood of poor	WBUAFS Kolkata	January 10-11, 2011 2 Days
	National Seminar on Impact of emerging areas of science & technology on the development of society	Science City, Kolkata	February 5-6, 2011 2 Days
	Challenges and strategies for Veterinary Public Health in India	Bihar Veterinary College, Patna	February, 2011
	Higher Education as the Harbinger of a Prosperous Modern India	Kolkata	November 19, 2011 1 Day
Dr. S. Pradhan	Participated in UGC sponsored "Orientation Programme" in UGC- Academic Staff College	Jadavpur University	11/07/2011-06/08/2011 27 Days
	Participated in the Eastern Regional Conference on "Global warming & Future of Animal Wealth of Sunderban Island" by Indian Association For Animal Production, 19-21 December, 2010.	WBUAFS	19-21 December, 2010. 3 Days





	Participated in Third Conference on Continuing Education in Toxicologic Pathology- Reproductive System, organized by Society for Toxicologic Pathology in India(STPI),Bangalore. 2010.	Bangalore	2010, 3 Days
DR. N.C. Patra	Participated in XX Annual conference of Society of animal Physiologists in India and <b>International symposium</b> on Advances in Physiologic Research for Sustainable Development of Livestock and Poultry Production with a Satelite Symposium on Strategic Physiological Research for Sustainable Animal Biodiversity	WBUAFS	2011, 3 Days
	Workshop on History of Science on the theme "Science in India in the 20 <sup>th</sup> Century"	THE ASSIATIC SOCIETY	2011, 7 Days
	19 <sup>th</sup> State Science &Technology Congress	SINP Kolkata	2012, 2 Days

#### H.1.A.7. Department of Pharmacology & Toxicology

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. Tapan Kumar Mandal, Professor	National Training on Biosecurity in Animal Health Coupled with Infectious and Xenobiotic Residues and Mitigation	WBUAFS, Kolkata	1-15 Dec., 2011, 15 days
	Mid Term Review Meet	Bombay Veterinary College	2010, 1 day
	8 <sup>th</sup> CIC meeting	UBKV, Coochbihar	2010. 1 day
	Xth Annual Conference of Indian Society of Veterinary Pharmacology & Toxicology (ISVPT)	Madhya Pradesh Pashu Chikits Vigyan Viswa Vidyalaya, Jabalpur, M.P.	2010, 2 days
	Animal health & vaccination camp, farmer's training programme on "Cattle diseases"	Lodhashuli, West Midnapur	22.08.2010, 1 day
	Midterm Review Meet of "Outreach Programme on Monitoring of drug residues and environment pollutants"	NASC Complex, New Delhi	2011, 1 day



	Annual Review Meet of "Outreach Programme on Monitoring of drug residues and environment pollutants"	NASC Complex, New Delhi	2011, 1 day
Dr. T. K. Sar, Lecturer	Orientation Training Programme organized by U.G.C Academic Staff College.	Jadavpur University, Salt Lake Campus.	1-27 Feb., 2010, 24 days
	Farmer's Training on 'Duck Diseases and remedy'	Chandanpiri, Namkhana NGO (Vivekananda Welfare Society)	23.04.2011, 1 day
	UGC sponsored Refresher course in Life Sciences, in Academic Staff College,	University of Calcutta	6 -28 December, 2010, 23 days
	Training programme on data analysis using SAS of the NAIP Consortium "Strengthening statistical computing for NARS"	C.I.F.R.I., Kolkata	14 -19 Feb., 2011, 5 days
	National Training on Biosecurity in Animal Health Coupled with Infectious and Xenobiotic Residues and Mitigation	WBUAFS, Kolkata	1- 15 Dec., 2011, 15 days
	"CME on adverse drug reaction monitoring for safer therapeutics"	R. G. Kar Medical College, Kolkata	09.01.2012, 1 day

#### H.1.A.8. Department of Veterinary Surgery & Radiology

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. Sarbani Hazra	ARVO	Fort Lauderdale, Florida.USA.	May 2011.
	Annual conference of ISVS, Kolkata	ISVS, Kolkata	11 -13 Nov, 2011 3 Days
	CPSCEA 2012	R.G Kar Medical College and Hospital, Kolkata	2012
	Recent trends in biomedical engineering	Jadavpur University	11 - 30 June 2012, 20 Days
	Glaucoma, IOP optic nerve and beyond	L.V.Prasad Eye Hospital, Bhubaneswar	21-22, July, 2012, 2 Days
	Annual meeting of IERG-ARVO-IC L.	V. Prasad Eye Hospital, Hyderabad	28-29, July, 2012, 2 Days





Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Samit Kumar Nandi	Workshop of Committee for the purpose of Control and Supervision of Experiments on Animals (CPCSEA)	Central Glass and Ceramic Research Institute, Kolkata	1 day 19.4.2010
	Invited Lecture on "Biomaterials for Practical Solutions to orthopaedic Surgical Challenges" in World Congress on Biotechnology, by OMICS Publishing Group, USA	Hyderabad, India	21-23th March, 2011
	Invited Lecture on "Local delivery system of protein and antibiotic in orthopaedic Surgical" in International Conference on Exhibition & Pharmaceutical Biotechnology, Hyderabad, India by OMICS Publishing Group, USA	Hyderabad, India	3 days 6-8 June, 2011
	Contributory Lecture on "Development of porous chitosan alone and in combination with growth factors and snail extract in bone healing" in International Conference on Biomaterials and Implants; Prospects and possibilities in the New Millennium	Central Glass and Ceramic Research Institute, Kolkata	21-23 July, 2011
	XX Annual Conference and International Symposium on "Advances in Physiologic Research for Sustainable Development of Livestock and poultry Production"	WBUAFS, Kolkata	3 days 4-6 November, 2011
	XXXV Annual Congress of Indian Society for Veterinary Surgery and International conference on "Nanobiomaterials in Biomedical Research: their application in Veterinary Surgery" held on at Kolkata	WBUAFS, Kolkata	11-13th November 2011
	Award Lecture in Second National Conference on Biotechnology, Bioinformatics and Bioengineering of Society of Applied Biotechnology, India on "Application of biomaterials in orthopaedic surgical challenges"	Kolhapur, Maharashtra	24-25 February, 2012



Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr Asit Kumar Maji	• ISACP conference	Bangalore	2010
	• ISVS conference Dec..	Pondichery	2010
	• ISACP conference Lead paper presented	Jammu	2011
	• ISVS conference organised as treasurer	Kolkata	2011
	• 4 ISACP conference presented lead paper	Bikaner	2011 2012

#### H.1.A.9. Department of Veterinary Epidemiology & Preventive Medicine

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. Chanchal Guha (Professor) & Dr. Ujjwal Biswas (Senior Lecturer)	Recent developments in diagnostics and therapeutics including application of nanotechnology in Veterinary Medicine	Mumbai, (M.S.)	17 <sup>th</sup> -19 <sup>th</sup> February 2011, 3 days
Dr. Chanchal Guha (Professor) & Dr. Ujjwal Biswas (Reader)	Health Strategies vis-à-vis Animal Welfare with application of Biotechnology with Special reference to North-Eastern Region.	Selesih, Aizawl, Mizoram	1 <sup>st</sup> -3 <sup>rd</sup> February 2012, 3 days
Dr. Ujjwal Biswas (Reader)	Novel ICT and its Application for Livestock Production, Animal Health Management and Veterinary Care	Chennai	7 <sup>th</sup> -27 <sup>th</sup> September 2011, 21 days
Dr. Ujjwal Biswas (Reader)	Biosecurity in Animal Health Coupled with Infectious and Xenobiotic Residues and Mitigation	Kolkata	01.12.2011-15.12.2011, 15 days
Dr. Ujjwal Biswas (Reader)	Data Analysis using SAS	Bhubneswar, Orissa, India	13.02.2012 - 18.02.2012, 6 days



**H.1.A.10. Department of Veterinary Public Health**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. C. Debnath, Assistant Professor  Dr.A.K.Pramanik, Professor (contractual)  Dr. Utpal Das, Guest Lecturer	9 <sup>th</sup> All India Conference and National symposium on "Challenges and Strategies for Veterinary Public Health in India"	Bihar Veterinary College, Patna, Bihar.	8-19 February, 2011 2 Days

**H.1.A.11. Department of Veterinary & AH Extension Education**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	VenueDuration (Dates)	
Dr.Debasis Ganguli, Lecturer (Sr.Scale) & HOD	National Symposium on Veterinary and Medical Sciences in Health, environment and food security.	Faculty of Veterinary and Animal Sciences, WBUAFS, Kolkata	10-11 Jan, 2012, 2 Days
	XX Annual Conference SAPI and International Symposium on h Advances in physiologic research for sustainable development of Livestock and poultry production. November 2-4, 2011.WBUAFS, Kolkata.	Faculty of Veterinary and Animal Sciences, WBUAFS, Kolkata	2-4 November, 2011, 2 Days
	National Training Programme on Biosecurity in Animal Health coupled with Infectious and xenobiotic residues and Mitigation	Faculty of Veterinary and Animal Sciences, WBUAFS, Kolkata	1-15 December, 2011. 14 Days

**H.1.A.12. Department of Veterinary Gynaecology & Obstetrics**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Prof.(Dr.) Siddhartha Basu, Professor	Antigenicity of Bull Acrosome in Model Rabbits. Paper presented in 17 <sup>th</sup> State Science and Technology Congress, West Bengal held in at WBUAFS, Kolkata	WBUAFS, Kolkata	4-5 March, 2010 2 Days



	As a Guest speaker, delivered lecture on 'Importance of Reproductive performance management for profitable dairy farming' on 13.09.2011, organized by Indian Immunologicals Limited on the occasion of World Veterinary Year 2011, held in Kolkata	Kolkata	13.09.2011 1 Day
	Future prospect of Coenzyme Q10 (CoQ10) and Soy phosphatidylcholine (SPC) in EK extender on preservation of Rhode Island Red (RIR) poultry semen and their effects on fertility. International symposium on "Advances in Physiologic Research for Sustainable development of livestock poultry production", organized by Society of Animal Physiologist of India (SAPI), held in Kolkata.	Society of Animal Physiologist of India (SAPI), held in Kolkata.	2-4 November, 2011, 3 Days
	International Symposium on Nano-biomaterials in Biomedical Research: Their application in Veterinary Surgery in the XXXV Annual Congress of ISVS held in Kolkata	Kolkata	11-13 November, 2011, 3 Days
Dr. Uttam Datta Reader	17 <sup>th</sup> West Bengal State Science and Technology Congress	Organised by W.B. State Technology and WBUAFS, Kolkata-700037	04.03.2010 -05.03.2010, 2 Days
Dr. Pramode Ranjan Nandi, Senior Lecturer	UGC sponsored national seminar on Recent Reform in education in India: Trends and Challenge: Organized by W.B.C.T.A.	Organized by W.B.C.T.A. held at Coochbehar	1-2 Oct, 2010, 2 Days
	VIII State Level Seminar Odisha 2010 on Clinical Management of Infertility; A novel approach: Organized by ISSAR Odisha chapter at College of Vety. Sc & A.H.,OUAT.	College of Vety. Sc & A.H.,OUAT, Bhubaneswar	30-31 Oct, 2010, 2 Days
	UGC sponsored Refresher course in Recent developments in Nano science & Technology, Organized by UGC Academic Staff College, Jadavpur University	UGC Academic Staff College, Jadavpur University	13 Sept-4 Oct, 2010 21 Days





	TOT on Advancement of Elephant Healthcare and Managerial Practices sponsored by Directorate of Project elephant, Ministry of environment & Forests, Govt. of India, New Delhi held at College of Vety. Science, Khanapara, Guwahati.	College of Vety. Science, Khanapara, Guwahati	1-11 April, 2011, 11 Days
	Workshop on "History of Science: theme Science and civilization" held under the auspices of the Asiatic Society, (An Institute of National Importance) 1, Park Street, Kolkata-16	Asiatic Society, 1, Park Street, Kolkata-16	12 -17 March, 2012, 6 Days
Dr.(Mrs.) Kalyani Ray, Reader	Orientation Programme	Jadavpur University, Academic Staff College, Salt Lake, Kolkata West Bengal	27.07.2010 -21.08.2010 28 Days
	Refreshers course on "Hands on stem cell research for quality animal reproduction"	NAIP, Organized at National Dairy Research Institute (Deemed University), Karnal, 132001, (Haryana), INDIA	17.03.2011 -30.03.2011 15 Days
	17 <sup>th</sup> State Science & Technology held at WBUAFS, Kolkata	WBUAFS, Kolkata	4-5 March, 2010, 2 Days
	Training programme on "Data analysis using SAS" organized by NAIP consortium by Directorate of Water Management, Chandrasekharpur, Bhubaneswar -751023.	CIFRI, Barrackpore	14-19 February, 2011, 6 Days
	Workshop-cum-training programme on "applications of ICT in animal resources management" organized by DREF, WBUAFS, Kolkata, W.B. and National Institute of Agricultural Extension Management (Manage), Hyderabad, A P.	WBUAFS, Kolkata	15-17 July, 2011, 3 Days
	National training On "Biosecurity in animal health coupled with infectious and xenobiotic residues and mitigation." Sponsored by NAIP (ICAR), Organized at WBUAFS, KOLKATA.	WBUAFS, KOLKATA. 37, K.B. Sarani, Kolkata -700037	01-12-11 -15-12-11 15 Days



Prof. (Dr.) Shyamal Kumar Roy (Re-employed), Professor	Seminar on Large Animals' Reproduction Failure and its management, given by Dr. S. Ashokan.	Metro Railway Auditorium	3.12.2010 1 Day
	Seminar on Stem Cells in Basic and Applied Research, given by Dr. Sujoy Kr. Dhara	WBUAFS Library Seminar Room	25.04.2011 1 Day

## H.I.B. FACULTY OF FISHERY SCIENCES

### H.I.B.1. Department of Aquatic Animal Health

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Prof. T. J. Abraham, Professor	Workshop on "Experiential Learning in Fisheries"	Fisheries College and Research Institute, TANUVAS, Thoothukudi, Tamil Nadu	21.07.2011 1 Day
	"Second Consultative Meet of Deans of Agricultural Universities"	Sardharkrushinagar Dantiwada Agricultural University, Dantiwada, Gujarat	12.08.2011 to 14.08.2011 3 Days
	National workshop on "Creation of awareness of the CCRF and capacity building for effective implementation in India"	CIFE, Mumbai	1.2.2012 to 2.2.2012 2 Days
Dr. G. Dash, Reader	National Consultation on Development of Surveillance Programme for Aquatic Animal diseases	NBFGR, Lucknow	17 – 18 April, 2012, 2 Days
	NAIP Training Programme on Biosecurity in Aquaculture-Aquamedicine	College of Fisheries, Mangalore, Karnataka	10 – 24 August, 2011, 15 Days
	Workshop cum Training on "Application of ICT in Animal Resource Management"	MANAGE, Hyderabad and WBUAFS, Kolkata-37	15 – 17, July 2011 3 Days



**H.1.B.2. Department of Aquatic Environment Management**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr R K Trivedi Professor	9th Indian Fisheries Forum	CMFRI, Chennai	20-23 December, 2011, 4 Days
	Expert Consultation on Revitalising Indian Fisheries Education to Meet the 21st Century Aspirations.	Fisheries College and Research Institute, Thoothukudi	8-10 May, 2011 3 Days
Dr R K Trivedi Professor Dr. B.K.Das Reader Dr. S.K.Rout Reader	Urban water resource Management	WBUAFS, Belgachia, Campus	26 <sup>th</sup> March, 2011, 1 Day
Dr R K Trivedi Professor Dr. B.K.Das Reader Dr. S.K.Rout Reader	21st All India Congress of Zoology. National Seminar on Biodiversity Conservation with special Reference to Fisheries and its Management for Food; Livelihoods and Environmental Security & 2nd National Helminthological Congress.	CIFRI, Barrackpore	21-23 December, 2010, 3 Days
Dr R K Trivedi Professor Dr. B.K.Das Reader	Golden Jubilee National Seminar (DALAF-2010).	CIFE, Kolkata	27-28 August, 2010, 2 Days
Dr. B.K.Das Reader	International Conference.	Kochi.	17-20 January, 2011, 4 Days

**H.1.B.3. Department of Fishery Engineering**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. N.A.Talwar, Reader	9th Indian fisheries forum	Chennai	19 – 23 Dec, 2011, 5 Days



## H.I.C. FACULTY OF DAIRY TECHNOLOGY

### H.I.C.1. Department of Dairy Chemistry

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. A.K. Bandyopadhyay, Professor	38th Dairy Industry Conference (DIC)	Bengaluru	2010
Dr. P. K.Ghatak, Professor	Regional workshop on “ Efficient Operation and Maintenance of Boilers”	Indian Dairy Association (EZ), NDDDB, Kolkata	15th December, 2011, 1 Day
	Seminar on Food safety organized by AFSTI (Kolkata) and Dept. of Food Tech and Biochemical Engineering, Jadavpur University	Jadavpur University, Kolkata	3rd March, 2012, 1 Day
Dr. P. R.Ray, Reader	International Conference on “Functional Dairy Foods”	NDRI, Karnal	16-19 <sup>th</sup> Nov. 2011, 3 Days
Dr. P.K.Ghatak , Professor Dr. P. R.Ray, Reader	Current Technological challenge in Food Processing specially emphasizing food irradiation”	Biochemical Engg Dept. Jadavpur University, Kolkata	25-26 <sup>th</sup> June, 2011, 2 Days
	19 <sup>th</sup> West Bengal State Science and Technology Congress	SINP , Kolkata	1 – 3 March, 2012, 3 Days
Dr. P.K.Ghatak , Professor Dr. A.K. Bandyopadhyay, Professor	XL- Dairy Industry Conference (DIC)	New Delhi	2 - 5 Feb, 2012, 4 Days
Dr. A.K. Bandyopadhyay, Professor	39 <sup>th</sup> Dairy Industry Conference (DIC)	Kolkata	4 - 6 Feb, 2011, 3 Days
Dr. P.K.Ghatak , Professor Dr. P.R.Ray, Reader	National seminar organized by Indian Dairy Association (EZ)	Indian Dairy Association (EZ), NDDDB , Kolkata	7 <sup>th</sup> April 1 Day



**H.1.D. DIRECTORATE OF RESEARCH, EXTENSION & FARMS**

Name of the faculty member with Designation	Title of Seminar, Symposium, Workshop, Training attended	Venue	Duration (Dates)
Dr. B. K. Chand, Farm Manager	Workshop on Systematization for learning and monitoring & Evaluation of projects on Climate Change adaptation in rural areas of India	New Delhi	2 days 16-17 November, 2011
	Brainstorming Session on Embankment design and material for Indian Sundarban	Kolkata	2 days 23-24 March, 2012
	Workshop on Baselines and indicators for demonstration projects on Climate Change adaptation in rural areas of India	New Delhi	2 days 13-14 June, 2012
Dr. (Mrs.) Satabdi Das, Scientist (Selection Grade)	National seminar on <b>“Modern Biology and its Impact on Public Health”</b>	Dinabandhu Andrews College, Kolkata	1 Day 18/01/2012
	Seminar on <b>“Awareness for the Prevention of Sexual Harassment of Women at Workplace”</b>	WBUAFS, Kolkata	1 Day 22/2/2012
	<b>19<sup>th</sup> State Science &amp; Technology Congress</b>	SINP, Kolkata	2 Days 1/3/2012 – 2/3/2012
	National Seminar on <b>“Role of Governance ”</b>	IQAC, Calcutta Univ., Kolkata	2 Days 23/3/2012 -24/3/2012
Aparajita Biswas, Computer Programmer (Selection Grade)	National seminar on <b>“Agro-Biotech and Dairy Technologies and Animal Health”</b>	ICC, Kolkata	1 Day 16/12/2010
	National seminar on <b>“Modern Biology and its Impact on Public Health”</b>	Dinabandhu Andrews College, Kolkata	1 Day 18/01/2012
	Seminar on <b>“Awareness for the Prevention of Sexual Harassment of Women at Workplace”</b>	WBUAFS, Kolkata	1 Day 22/2/2012
	<b>19<sup>th</sup> State Science &amp; Technology Congress</b>	SINP, Kolkata	2 Days 1/3/2012 – 2/3/2012
	National Seminar on <b>“Role of Governance ”</b>	IQAC, Calcutta Univ., Kolkata	2 Days 23/3/2012 -24/3/2012



## H.2. ABROAD VISIT OF SCIENTISTS

### H.2.1 Dr. Amlan Patra, Department of Animal Nutrition

Sl. No.	Period of Visit		Institute/ Country visited	Purpose of Visit
	From	To		
1	Oct, 2010	March, 2012	USA	BOYSCAST Fellowship

### H.2.2 Prof. G. Samanta, Professor, Department of Animal Nutrition

Sl. No.	Period of Visit		Institute/ Country visited	Purpose of Visit
	From	To		
1	23.8.2010	27.8.2010	Tours, France	European Poultry Congress,

### H.2.3 Prof. T. K. Ghosh, Professor, Department of Animal Nutrition

Sl. No.	Period of Visit		Institute/ Country visited	Purpose of Visit
	From	To		
1	25.7.2011	26.7.2011	Bangkok	Feed Quality Conference

### H.2.4 Dr. S. Halder, Lecturer, Department of Animal Nutrition

Sl. No.	Period of Visit		Institute/ Country visited	Purpose of Visit
	From	To		
1	25.7.2011	26.7.2011	Bangkok	Feed Quality Conference

### H.2.5 Dr. S.K. Mukhopadhyay, Associate Professor, Department of Veterinary Pathology

Sl. No.	Period of Visit		Institute/ Country visited	Purpose of Visit
	From	To		
1	08-12-2011	14-12-2011	BARC-CDM, Savar, Dhaka, Bangladesh	As expert in "International Training Course on Livestock Management"



**H.2. 6 Prof. Tapan Kumar Mandal, Professor, Department of Pharmacology & Toxicology**

Sl. No.	Period of Visit		Institute/ Country visited	Purpose of Visit
	From	To		
1	2012	2012	Department of Clinical Pharmacology & Therapeutics, B. P. Koirala Institute of Health Sciences, Dharan, Nepal	Invited as Speaker in International Conference on recent update in pharmacology
2	2012	2012	Bidhan Chandra Krishi Viswavidyalay and D. N. Guha Majumdar Research Foundation	Invited as Speaker in International Conference on Arsenic; cause, effect and mitigation

**H.2. 7 Dr. Samit Nandi, Reader, Department of Veterinary Surgery & Radiology**

Sl. No.	Period of Visit		Institute / Country visited	Purpose of Visit
	From	To		
1	2.8.2010	04.08.2010	Nanyang Technological University, <b>Singapore</b>	To present research paper in The 2 <sup>nd</sup> International Conference on Cellular and Molecular Bioengineering

**H.2. 8 Dr. Sarbani Hazra, Reader, Department of Veterinary Surgery & Radiology**

Sl. No.	Period of Visit		Institute/ Country visited	Purpose of Visit
	From	To		
1	May 2011 01.05.2011	May 2011 05.05.2011	Fort Lauderdale, Florida, USA	USA - ARVO Annual Conference
2	20.01.2011	22.01.2011	Singapore	Asia - ARVO Annual Conference

**H.2. 9 Dr. B K Chand, Farm Manager, Directorate of Research, Extension & Farms**

Sl. No.	Period of Visit		Institute/ Country visited	Purpose of Visit
	From	To		
1	08.09.11	15.09.11	Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, Yantai, China	To attend training programme on Enhancing Capacities for Global Change Mitigation in Asia-Pacific Coastal Zones



I

## HONOURS / AWARDS/ FELLOWSHIPS ETC. RECEIVED BY THE TEACHERS/ SCIENTISTS/ OFFICERS OF THE UNIVERSITY

Sl. No.	Name of the recipient	Name of the honour/ award/ fellowship/ scholarship etc.	Offering organization	Field of remarkable activity
1	Dr. A.K. Patra, Lecturer, Department of Animal Nutrition	BOYSCAST Fellowship	DST	Animal Nutrition
2	Dr. A.K. Patra, Lecturer, Department of Animal Nutrition	Young Scientist award	Animal Nutrition Association	Animal Nutrition
3	Dr. A.K. Patra, Lecturer, Department of Animal Nutrition	Dr. K. Prodhan Award	A.N.S.I.	Animal Nutrition
4	Prof. J. D. Ghosh, Professor, Dept. of Veterinary Parasitology	Best paper presentation award in the 22nd National Congress of Parasitology	Indian society for Parasitologist	Vety. Parasitology
5	Dr. S. Pandit, Lecturer, Dept. of Veterinary Parasitology	Best paper presentation award in the 18 <sup>TH</sup> W. B. State Science & Technology Congress	W. B. State Council of Science & Technology,	Vety. Parasitology
6	Dr. S. Batabyal, Reader, Dept. of Biochemistry	Fellow of Society of Applied Biotechnology (F.S.A.B)	Society of Applied Biotechnology, 1/1 15, Puliur, Krishnagiri, Tamil Nadu, India	Animal Biochemistry and Biotechnology
7	Dr. S. N. Joardar, Reader, Dept. of Microbiology	Best research paper award, 17th West Bengal State Science & Technology Congress	DST, Govt. of W.B. and WBUAFS	Animal and Fishery
8	Dr. S. N. Joardar, Reader, Dept. of Microbiology	Best research paper award 19 <sup>th</sup> West Bengal State Science & Technology Congress	DST, Govt. of W.B and SINP	Animal and Fishery Science
9	Dr. S. N. Joardar, Reader, Dept. of Microbiology	Fellowship (Fellow of SAB)	Society of Animal Biotechnology	Animal Biotechnology
10	Dr. S.K. Mukhopadhyay, Associate Professor, Department of Veterinary Pathology	Zonal Secretary, Eastern Region	Indian Association of Veterinary Pathologists	Vety. Pathology





Sl. No.	Name of the recipient	Name of the honour/ award/ fellowship/ scholarship etc.	Offering organization	Field of remarkable activity
11	Dr. S.K. Mukhopadhyay, Associate Professor, Department of Veterinary Pathology	Editor, Indian Journal of Veterinary Pathology, Livestock line, Poultry line & Indian pet Journal, International Journal of Livestock Research.	Indian Journal of Veterinary Pathology, Livestock line, Poultry line & Indian pet Journal, International Journal of Livestock Research	Vety. Pathology
12	Dr. S.K. Mukhopadhyay, Associate Professor, Department of Veterinary Pathology Dr M.K.Bhomik, Retired Professor, Department of Veterinary Pathology Dr N.C Patra, Lecturer, Department of Veterinary Pathology	GENE SEQUENCING FROM NCBI, Isolation of Anatid herpesvirus IDEV/Bud/11 UL31 protein and UL30 protein genes, partial cds.	National Centre for Biotechnology Information	Vety. Pathology
13	Dr. S.K. Mukhopadhyay, Associate Professor, Department of Veterinary Pathology	Indian ambassador of the Vet 2011 project (international Vety. Year & 250 year celebration of Vety. Profession observed by WHO,FAO,OIE.	World Health Organisation	Vety. Pathology
14	Prof. Tapan Kumar Mandal, Professor, Department of Pharmacology & Toxicology	Member	State Wild Life Board, Govt. of West Bengal	Vety. Pharmacology & Toxicology
15	Prof. Tapan Kumar Mandal, Professor, Department of Pharmacology & Toxicology	General Secretary,	Indian Pharmacological Society	Vety. Pharmacology & Toxicology
16	Dr. Samit Kumar Nandi, Reader, Department of Surgery & Radiology	CSIR Technology Award-2010	Council of Scientific and Industrial Research, Government of India	Technology Award for Physical Sciences including Engineering for Developing manufacturing Technology of Bioceramic Implants for Medical applications <i>as a part of award winning team</i>



Sl. No.	Name of the recipient	Name of the honour/ award/ fellowship/ scholarship etc.	Offering organization	Field of remarkable activity
17	Dr. Samit Kumar Nandi, Reader, Department of Surgery & Radiology	CSI Jubilee Award for best paper 2010-11	Central Glass and Ceramic Research Institute, Kolkata (An Institute under CSIR)	Best paper Award on Material Science during April 2010-2011
18	Dr. Samit Kumar Nandi, Reader, Department of Surgery & Radiology	SAB Award for "Excellence in Animal Biotechnology" 2011	Society of Applied Biotechnology, India	For innovative research at the frontiers of Biotechnology, and for exceptional potential to shape the future through intellectual and inspired leadership in animal biotechnology.
19	Dr. Samit Kumar Nandi, Reader, Department of Surgery & Radiology	IUSSTF Travel support 2011	INDO-US SCIENCE & TECHNOLOGY FORUM, New Delhi	For Visiting Scientist (Adjunct Faculty) in USA
20	Dr. Samit Kumar Nandi, Reader, Department of Surgery & Radiology	Appreciation Award in Orthopaedic Surgery Session 2011	Indian Society for Veterinary Surgery	For paper presentation in XXXV Annual Congress of Indian Society for Veterinary Surgery and International Symposium on Nanobiomaterials in Biomedical Research: their application in Veterinary Surgery
21	Asit Kumar Maji, Lecturer, Department of Surgery & Radiology	Consolation award in poster session	ISACP canine conference 2012, Bikaner, Rajasthan	Vety. Surgery & Radiology





<b>Sl. No.</b>	<b>Name of the recipient</b>	<b>Name of the honour/ award/ fellowship/ scholarship etc.</b>	<b>Offering organization</b>	<b>Field of remarkable activity</b>
22	Dr. Chanchal Guha, Professor, Veterinary Epidemiology & Preventive Medicine Dr. Ujjwal Biswas, Reader, Veterinary Epidemiology & Preventive Medicine	Bharat Jyoti Award	IIFS	For outstanding performance & remarkable role
23	Dr. Chanchal Guha, Professor, Veterinary Epidemiology & Preventive Medicine	S.K.MYLSAMY GOUNDER GOLD MEDAL	ISVM	on excellent contribution in the field of POULTRY MEDICINE
24	Dr. Ujjwal Biswas, Reader, Veterinary Epidemiology & Preventive Medicine	“Rajib Gandhi Excellence Award”	IIFS	outstanding individual activities and distinguished service to the Nation
25	Dr. Ujjwal Biswas, Reader, Veterinary Epidemiology & Preventive Medicine	Indo Nepal Ratan Award	EGSI	In recognition of sterling merit excellent performance & outstanding contribution for the progress of the Nation & Worldwide
26	Dr. Ujjwal Biswas, Reader, Veterinary Epidemiology & Preventive Medicine	Rashtriya Vidhya Samman Puruskar	EGSI	In reorganization of Sterling Merit Excellent Performance and outstanding contribution for the progress of nation & world wide
27	Dr. Ujjwal Biswas, Reader, Veterinary Epidemiology & Preventive Medicine	Nobel India Award for Education Excellence	IOBRD	Outstanding contribution & Lifetime achievement in their respective field.
28	Dr. Ujjwal Biswas, Reader, Veterinary Epidemiology & Preventive Medicine	Rashtriya Gourav Award	IIFS	Meritorious Services, Outstanding Performance and Remarkable Role



Hon'ble Vice Chancellor inaugurating the Technology week cum Krishi Mela -2012 at Murshidabad KVK



Hon'ble Vice Chancellor delivering the inaugural speech at DRDC, N. 24 Parganas assisted Training Programme for SHGs on Animal Husbandry Development



IICPT, MoFPI, Govt. of India sponsored training programme on Cottage level food processing organized by DREF at Kishan Abas, Kolkata



NMPPB, Govt. of India assisted Butchers Training programme organized by Deptt. of LPT & DREF at Murshidabad KVK



IICPT, MoFPI, Govt. of India funded Training programme on Cottage level food processing entrepreneurship development organized by DRFF at Trainees' Hostel, Mahanpur





Demonstration Ribbon retting of Jute to SHG members at Jalpaiguri, KVK



Training Programme on Social Forestry Nursery for SHG members under MGNREGS conducted by KVK, Jalpaiguri



Murshidabad KVK scientist imparting training on fish health check up for the fishermen at farmers' field



Murshidabad KVK Scientists' visit to farmers field conducting FLD on Red Cabbage



RKVY funded Bio-Village established under N. 24 Parganas KVK



Seed Treatment of Elephant Foot Yam (OI) carried out by KVK personnel at N. 24 Parganas KVK





Sl. No.	Name of the recipient	Name of the honour/ award/ fellowship/ scholarship etc.	Offering organization	Field of remarkable activity
29	Dr. Ujjwal Biswas, Reader, Veterinary Epidemiology & Preventive Medicine	Glory of India Gold Medal	IISA	Remarkable contribution to Indians National Prestige
30	Dr. Ujjwal Biswas, Reader, Veterinary Epidemiology & Preventive Medicine	The Best Citizens of India Award 2011	International Publishing House	Vety. Preventive Medicine
31	Prof. (Dr.) Siddhartha Basu, Professor, Veterinary Gynaecology & Obstetrics	Fellow, National Academy of Veterinary Science	National Academy of Veterinary Science, New Delhi, India	Vety. Gynaecology Obstetrics
32	Dr B K Chand, Farm Manager, Directorate of Research, Extension & Farms	Member	West Bengal State Action Plan Committee on Climate Change, Sub-sector- Sundarban	Fishery Science
33	Dr. (Mrs.) Satabdi Das, Scientist (Selection Grade)	Dr. Gopal Chandra Bhattacharya Memorial National Science Award, 2011	The Science Association of Bengal	For popularization of science in Bengali language for mass media



**J**

## IMPORTANT OCCASIONS ATTENDED BY THE HONOURABLE VICE CHANCELLOR OF THE UNIVERSITY

Sl. No.	Hon'ble VC's Occassions	Venue	Duration (Dates)
1	Inaugration of a Seminar on skill Development of students under the aegis of NSS	WBUAFS, Kolkata, W. B.	05 Jan. 2011
2	Delivered a lecture on Integrated Farming in a seminar	North Bengal University	06 Jan. 2011
3	Reunion of Veterinary Faculty	WBUAFS, Kolkata, W. B.	10 Jan. 2011
4	Chairman of a special meeting of the Dean (DT), Teachers and student representatives	Faculty of Dairy Technology, WBUAFS, Mohanpur Campus, W. B.	12 Jan. 2011
5	Presided over the NFDB sponsored Training programme and observed the developmental activities	Faculty of Dairy Technology, WBUAFS, Mohanpur Campus, W. B.	14 Jan. 2011
6	Meeting of Animal Welfare Council		18 Jan. 2011
7	Chaired the meeting of the Officers for distribution of ICAR grants	WBUAFS, Kolkata, W. B.	19 Jan. 2011
8	Chaired the Finance Committee meeting	WBUAFS, Kolkata, W. B.	24 Jan. 2011
9	ICAR Annual General Meeting	ICAR, New Delhi	21-23 Feb. 2011
10	IAUA Vice-Chancellors' Conference	New Delhi	21-22 Apr. 2011
11	ICAR Meeting addressed by Hon'ble Prime Minister	ICAR, New Delhi	16 Jul. 2011
12	Vice-Chancellors' Mid-term evaluation meeting	ICAR, New Delhi	26-28 Sep. 2011
13	Meeting related to Second Green Revolution	Rashtrapati Bhawan, New Delhi	15 Feb 2012
14	SAC Meeting 24 Pgs. (N) KVK	Ashokenagar, North 24 Pgs.	29 Feb 2012
15	1 <sup>st</sup> Poultry Mela	Milon Mela Prangan, Kolkata	1 Mar. 2012
16	ICAR – SAU Summit	Lake Hall, Kalyani	13 Mar 2012
17	ICAR Meeting presided by DG, ICAR for selection of Niche area of excellence projects	ICAR, New Delhi	18 Mar 2012



Sl. No.	Hon'ble VC's Occassions	Venue	Duration (Dates)
18	Selection Committee Meeting	WBUAFS, Kolkata, W. B.	07 Apr. 2012
19	Meeting with ADG, DDG(Edn) and DG, ICAR about Development Grants for the university	WBUAFS, Kolkata, W. B.	16 Apr. 2012
20	Emergency Meeting of the Veterinary Faculty Council	WBUAFS, Kolkata, W. B.	19 Apr. 2012
21	Chaired the Finance Committee meeting	WBUAFS, Kolkata, W. B.	20 Apr. 2012
22	Attended ICAR- Institute meeting on fishery Education organized by CIFE, Mumbai	Kolkata	23 Apr. 2012
23	Attended Zone - II meeting of ICAR	Naarm, Hyderabad	19-20 Jul. 2012
24	Presented views of the University regarding financial matter of the University	Legislative Assembly Committee, Assembly House	17 Aug 2012
25	ICAR Knowledge Meet	NASC Complex	21-22 Aug. 2012
26	Participated and presented a paper in the East Zone AIU Vice-Chancellors' Conference	Central University, Jharkhand	28-29 Aug. 2012
27	Attended and presented a paper in the Indian Vice-Chancellors' Conference	Shanghai, China	28 Sep. – 2 Oct. 2012
28	Inauguration of a panel discussion on "Water for sustainable Agriculture"	Institution of Engineers (India)	5 Oct 2012





K

## CENTRAL LIBRARY AND INFORMATION NETWORK SERVICES (CLINS)

Research, communication and information always travel side by side. Improved methods of transmission of information can help to produce meaningful research. This is even more true with the Veterinary, Fishery and Dairy Sciences.

The Central Library of this University was established in the year 1995, with some texts books. Every academic mind of this University had the intention to develop its own Central Library to keep pace with the time. Therefore this University established the Central Library and Information Network Service (CLINS) at its Belgachia, Kolkata, main campus by utilization of some ICAR fund and started functioning with the books, journals and other materials. However, this Central Library has another set-up at Mohanpur, Nadia (Dairy Technology) and Chakgaria, Kolkata (Fishery Sciences) campus of the University. The Library facilities is getting improved with the collections of books & journals out of the sanctioned fund received from the ICAR and also the State Government.

The Central Library is accommodated in a total floor space of about 15000 sq. ft. in two storied building for it's various activities utilizing the financial assistance from ICAR catch-up-grant. Some grant was received from the ICAR during the period from 1999-2000 to 2003-04, under the project "**Strengthening of Library information system**" for various developmental works especially electronic services (Library automation) for the benefits of the students scholars and academicians of the University.

The Central Library receives the Development Grant from the ICAR under Library Strengthening only. No grant has been received from the Local Government since 2005.

### **The various activities of the CLINS are as hereunder:**

- Electronic Abstracting Services like CD ROM / Internet Browsing through LAN under NME at three campuses which has been monitoring by the CLINS
- Full articles access from CeRA (<http://cera.jccc.in>) and [www.cabdirect.org](http://www.cabdirect.org)
- Bibliographical databases on Book.
- Bibliographical databases on content of selective scientific and research journals.
- Bibliographical databases on dissertation / Theses abstracts.
- Close Circuited TV at Mohanpur and Belgachia campuses.
- Electronic charging system through Bar Code.



Besides above, the CLINS provides other services like:

- Photocopying / Xeroxing/Laminating Book-shop by a private Agency.
- Book Bank.
- Resource Sharing.

### K.1. Organizational Structure of the Library:

The Central Library is situated at the main (North Kolkata) campus of the University. Therefore all the ICAR mandated NATP schedules are established in the main campus at the first opportunity. Other two faculties are situated 45 km. away from the main campus where two separate off-campus small Libraries (One for Dairy Technology Faculty at Mohanpur and other for Fishery Sciences Faculty at Chakgaria, South Kolkata are functioning under the control of CLINS).

### K.2. Library Holdings:

- Databases of total Number of Books 21,000(Computerized)
- Databases of total number of volumes of Journals (Computerized): 7000
- Total number of current Journals:
- Foreign Journals: 27
- Indian Journals: 35
- Databases of total number of annual reports, pamphlets, bulletin, indexes and research highlights and news letter: 1700
- Total number of thesis / Dissertation including Ph.D (fully digitized): 1700
- Total number of records in data base 32000

### K.3. Services available:

- Internet Browsing privileges to the users: Extended to Post graduate and Research level users with a speed of 1gbps from NKN
- Online Abstracting Services: Extended to Post graduate and Research level users
- CD ROM(Veterinary and Dairy) update
- CAS(Current Awareness Service)
- Photocopying services
- Information Services file
- Resource Sharing
- Services to career guidance tools
- Wi-fi service
- DDR(Document Delivery Request) & DDS(Document Delivery Service) through CeRA.





#### **K.4. Capacity Building:**

- On introduction of the Library Management Software like SOUL as per recommendation of NATP, the capacity of the Library Service has been improved with regard to SOUL features and Library software (CLINS).
- Through LAN (extended by the Library) the research scholars are becoming able to search through Internet their references from their respective Departments.
- Electronic circulation by using bar-coding system has made the library management easy.
- Access to the journals, books and theses to the users are now available in a more easy and efficient manner.
- For watching the library document like reading materials has been made through close circuit security system.
- The efficiencies of the library with regard to using pattern, electronic abstracting services and library management system have been improved altogether with the NATP and University both on qualitative and quantitative basis.
- Cyber cafe for users at Belgachia, Kolkata campus.
- A small seminar cum audiovisual room for accommodation of 50 heads has been made.
- Established Internal e-Learning Facility.

#### **K.5. Library Automation:**

The CLINS has been taking up the appropriate steps to computerize the Library's housekeeping operations. The work related to retrospective conversion of Library collection is in progress in the form of bibliographical catalogue from including digitations of theses by WINISIS 5.0 version. But these work have to be converted again to SOUL software for automation and Bar Coding of all the Library accessions.

#### **K.6. Future planning:**

- Additional space for Civil Work & renovation / modernization of the library building is necessary.
  - To extend the more facilities for information hub for students and researchers at three campus.
-



## L

## CENTRAL INSTRUMENTATION FACILITIES

During XIth five year plan the University had received a fund from the Indian Council of Agricultural Research (ICAR), New Delhi under 'Establishment of Central Instrumentation Facility'. Utilizing that fund it has strengthened its Central Instrumentation facilities at the main campus. Valuable scientific equipments costing Rs. 1 lakh and above have been procured out of the fund received from Government of India, ICAR, State Government etc. These are being used in the three faculties of the University. The list of such equipments / instruments are furnished below -

## List of Valuable Equipments under the Central Instrumentation Facility

Sl. No.	Faculty of Fishery Sciences	Faculty of Dairy Technology	Faculty of Veterinary & Animal Sciences
1	High Performance Liquid Chromatography	Protein Analyzer	8 TPL Lab Model Torque Twin Screw Centrifuge
2	Analytical Balance	Infra red Analyzer	Electron capture detector
3	Modular Laboratory	Ice Cream Plant	Inverted Tissue Culture (Sigma)
4	Atomic Absorption Spectrophotometer	Condensing Unit	Inverted Trinocular
5	Water purification system	Drying Unit	ECD with Electrometer
6	Carbon di-oxide Incubator	Moisture Analyzer	Low Pressure Chromatography System
7	Microfuge	Gel Filtration	HP Proliant Server : Web & Mail Server
8	Thermal cycler	Rheometer	
9	Microblock Digestion system	BOD Analyzer	
10	U-V Trans-illuminator	PCR	
11	Air purifier/curtain	Vacuum Milk	
12	Gas chromatograph	Concentrator	
13	Inverted Microscope		
14	Deep freeze		
15	Generator		
16	Canning Machine		



**M**
**FINANCIAL**
**M.1. Funds received during the financial year of 2011-12 :**

Sl. No.	Funding Agency	2011-12	
		Non Plan	Plan
1	State Govt.	2764.26	42.97
2	ICAR - For Development Grant	Nil	508.16
3	ICAR & Other Central Agencies for Different Projects	Nil	336.61
4	State Govt. for RKVY Project	Nil	16.77
	<b>Total</b>	<b>2764.26</b>	<b>904.51</b>

**M.2. Resource generation during the financial year of 2011-12 :**

Sl.No.	Category of sources	2011-12
1	Tuition Fees	17.45
2	Pay seats / NRI fees	Nil
3	Farm / Horticulture/ Forestry	1.53
4	Animal Sector / Fees	1.25
5	Engineering Sector	Nil
6	Royalty / Consultancy	3.85
7	Others - Rent	10.10
8	Others - Bank Interests	16.21
9	Others - Misc. Receipts	17.89
	<b>Total</b>	<b>68.58</b>



## N

## HIGHLIGHT OF REMARKABLE ACTIVITIES / EVENTS

### N. 1. DISTINGUISHED VISITORS IN THE UNIVERSITY

1. Sri Mayankote Kelath Narayanan, His Excellency, Governor of West Bengal and Chancellor of the University.
2. Dr. S. Ayyappan, Secretary, Department of Agricultural Research and Education, & Director General (Indian Council of Agricultural Research), Govt. of India, New Delhi.
3. Dr. Charan Das Mohant, Minister of State, Agriculture and Food Processing, Govt. of India.
4. Dr. Arvind Kumar, Deputy Director General (Education), Indian Council of Agricultural Research, New Delhi.
5. Dr. K. D. Kokate, Deputy Director General (Agricultural Extension), Indian Council of Agricultural Research, New Delhi.
6. Dr. Kusumakar Sharma, Assistant Director General (Education), Indian Council of Agricultural Research, New Delhi.
7. Mr. Chanchal Sarkar, Deputy Secretary, Finance Department, Govt. of India.
8. Janab Nure Alam Chowdhury, Hon'ble Minister in Charge, Department of Animal Resource Development, Govt. of West Bengal.
9. Janab Abu Hena, Hon'ble Minister in Charge, Department of Fisheries, Aquaculture, Aquatic Resource & Fisheries Harbours and also Department of Food Processing Industries & Horticulture, Govt. of West Bengal.
10. Lt. General (Dr.) Narayan Mohanty, the First Director General of Remount Veterinary Service and the recipient of Param Vishisht Seva Medal (PVSM), Ati Vishisht Seva Medal (AVSM), Vishisht Seva Medal (VSM) and President of Veterinary Council of India.
11. Prof. K. Pradhan, Ex-Vice Chancellor, Swami Keshwanand Rajasthan Agricultural University.
12. Prof. R. Prabhakaran, Vice Chanellor, Tami Nadu Veterinary & Animal Sciences University.
13. Dr. K. M. Bujarbaruah, Vice Chanellor, Assam Agricultural University.
14. Prof. Debi Prasad Ray, Vice Chanellor, Orissa University of Agriculture & Technology.
15. Prof. S. K. Sanyal, Vice Chancellor, Bidhan Chandra Krishi Viswa Vidyalaya.
16. Prof. D. Bagchi, Ex-Vice Chancellor, Bidhan Chandra Krishi Viswavidyalaya.
17. Dr. A. Das, Ex-Vice Chancellor, Uttar Banga Krishi Viswavidyalaya.
18. Prof. R. N. S. Gowda, Former Vice Chancellor, Karnataka Veterinary University.



19. Mrs. Rupali Banerjee Singh, Chief Executive Officer, National Meat & Poultry Processing Board, Govt. of India.
20. Dr. B. Ventasawarulu, Director, Central Research Institute for Dryland Agriculture, Hyderabad.
21. Dr. D. Swarup, Former Director, Central Research Institute for Research on Goats.
22. Prof. Jerome Nriagu, Eminent internationally famed Scientist, United States of America.
23. Dr. B. Dinesh Kumar, Deputy Director, National Institute of Nutrition, Indian Council of Medical Research.
24. Dr. S. K. Bandypadhyay, Director, Medical Education & Research, Govt. of West Bengal.
25. Prof. Bijoy Kumar Chakraborty, Ex-Director, National Dairy Development Board (Eastern Region).
26. Dr. C. Devakumar, Assistant Director General (Education, Planning & Development), ICAR, New Delhi.
27. Dr. Hemanta Kr. Mazumder, Ex-Chief Executive Officer, W.B. State Council of Science & Technology, Govt. of West Bengal.
28. Dr. A. K. Singh, Zonal Project Director, Zonal Project Directorate, Zone-II, ICAR, Kolkata.
29. Dr. Dilip Kumar, Director, Central Institute of Fisheries Education, Mumbai.
30. Dr. A. P. Sharma, Director, Central Inland Fisheries Research Institute.

## N. 2. THE SEVENTH CONVOCATION

The seventh convocation of the University was held on 26th June, 2012 at Mohit Maitra Mancha, Belgachia, Kolkata. His Excellency the Governor of West Bengal and Chancellor of the University Hon'ble Sri Mayankote Kelath Narayanan inaugurated the convocation and presided over the ceremony. On this occasion, Lt. General (Dr.) Narayan Mohanty, the first Director General of Remount Veterinary Service and the recipient of Param Vishisht Seva Medal (PVSM), Ati Vishisht Seva Medal (AVSM), Vishisht Seva Medal (VSM) and President, Veterinary Council of India acted as the Chief Guest and he delivered the convocation address. The seventh convocation of the University conferred the Degree of Doctor of Science (Honoris Causa) on Dr. S. Ayyappan, Secretary, Department of Agricultural Research & Education, Ministry of Agriculture, Govt. of India and Director General, Indian Council of Agricultural Research, New Delhi and also on Prof. Bijoy Kumar Chakraborty, Ex-Director, National Dairy Development Board (Eastern Region). Janab Nure Alam Chowdhury, Hon'ble Minister-in-charge, Deptt. of Animal Resource Development and Janab Abu Hena, Hon'ble Minister-in-charge, Deptt. of Fisheries, Aquaculture, Aquatic Resource & Fisheries Harbours, Food Processing Industries & Horticulture to the Govt. of West Bengal were present to grace the occasion. A total of 14 students were awarded Ph.D degree, while 106 and 150 students received Master's and Bachelor's degree, respectively, in all the three faculties of the University. 37 different gold medals were awarded to 20 students for their excellence in different disciplines of study under the three faculties of the University. Hon'ble Chancellor, in his speech, exhorted the degree recipients to contribute immensely towards realizing the dreams of shining India and prosperous West Bengal. Chief Guest expressed his buoyant views in studies under this University and thereby immense employment opportunities in the near future. Hon'ble MIC, ARD Deptt. and Hon'ble MIC, Fisheries Development Deptt., Govt. of West Bengal greeted the out-turned students and wished them a bright future. Hon'ble Vice-Chancellor elaborated the importance of integrated farming in the State. All the dignitaries expressed their satisfaction about the performances of the University all together.



### **N.3. THE MOST VALUABLE EVENTS / ACHIEVEMENTS**

#### **N.3.1. ESTABLISHMENT OF DISTANCE EDUCATION STUDY CENTRE**

The first of its nature in India, a Programme Study Centre of Indra Gandhi National Open University is established during November, 2008 under the Department of Animal Products Technology and Marketing, Faculty of Veterinary & Animal Sciences at Mohanpur campus, Nadia. This Study Centre will cater studies on 'Diploma in Meat Technology'. This is a one year diploma course under Distance mode of education. Ten (10) number of students have been enrolled themselves for this course during the academic session 2011-2012.

#### **N.3.2. ORGANIZATION OF SUMMER TRAINING ON IMMUNO-BIOCHEMICAL TECHNIQUES**

The Department of Veterinary Biochemistry, Faculty of Veterinary & Animal Sciences organizes Summer Training on 'Immuno Biochemical Techniques' every year for one month duration from June to July months. Students of B. Tech. (Biotechnology), M. Tech. (Biotechnology), B. Sc/M. Sc. (Microbiology / Genetics) from various Institutes and Universities of India participate in the said Summer Training course. The students of this training course get exposure to practical orientation in different techniques like Antigen preparation and purification by Gel filtration chromatography, Ion exchange chromatography, Affinity chromatography, SDS – PAGE, DID, Western Blot, ELISA, Immuno-histochemistry and Cytochemistry etc.

Dr. Subhasis Batabyal, Head of the Department, Veterinary Biochemistry acts as the Course Coordinator where as Dr. S. N. Joardar, Dr. Partha Das and Dr. S. Baidya act as Course Instructor.

#### **N.3.3. ACTIVITIES OF NATIONAL SERVICE SCHEME (NSS)**

National Service Scheme (NSS) inculcates the spirit of voluntary works among the students and teachers through sustained community interactions. The NSS being priority programmes ran by Ministry of Youth Affairs and Sports, Govt. of India, shows how to combine knowledge and action to achieve results which are desirable for community development. Over the years, NSS has emerged as India's largest student youth movement in linking with the community. The WBUAFS received the sanction of State NSS in the year 2006-07 with a minimum number of volunteer. In the month of September, 2009, the University appointed Programme Co-coordinator of NSS with sanction of fund and subsequently the advisory committee has been formed.

##### **1. Programme so-far undertaken by the NSS**

- a) Animal Health Camp at Sonagaon and Dulki village of Aila affected area of Sunderbans, South 24 Pargans district.
- b) Scientific awareness on Organic Food Production on the day of foundation of the University.
- c) Essay competition to communicate commonwealth Game and its spirit to develop international understanding. Three Prizes have been awarded.
- d) Establishment of NSS- Garden with plantation of trees at Belgachia, Kolkata, the Head Quarter of the University.
- e) Animal Health Camp at Gosaba, Sundarbans, South 24 Parganas.





## 2. On-going programmes

- ❖ Organisation of Animal health programme,
  - ◆ One for awareness on Deworming and vaccination camp, in collaboration with Animal Resource Development Department, Govt. of West Bengal
  - ◆ General treatment and Surgical health camp
- ❖ Effort is being given to find out a village for adoption,
- ❖ Flower garden is being maintained at Belgachia, Kolkata, in the main campus of the University,
- ❖ Organisation of Seminar,
- ❖ Scientific awareness programme,
- ❖ Regular activities like Blood donation camp, Animal welfare day celebration, Tree plantation etc.

### N.3.4. SIGNING OF MOU WITH NMPPB :

A MOU was signed on 5th October, 2012 between National Meat & Poultry Processing Board (NMPPB), Ministry of Food Processing Industries, Govt. of India and WBUAFS which states that the University will provide technical consultancy to the board in all aspects of 'Meat Industry' as and when requested and the University will also prepare research note etc. in the fields of Meat Processing Industry for the board. The University may also design and organize specialized training and other capacity building programmes upon a request.

## N.4. ACHIEVEMENTS OF THE TEACHERS

1. **Prof. N. R. Pradhan**, Controller of Examinations (Actg.) & Director of Research, Extension & Farms (Actg.) received the **Fellowship of Indian Society for Advancement of Canine Practice-2011**.
2. Dr. Partha Das, Deptt. Vety. Anatomy & Histology received the **Dr.A.K.Srivastav award and medal for best paper in Biotechnology** including stem cell technology at 25th Annual National Convention of Indian Association of Veterinary Anatomists-2011.
3. **Prof. Tapan Kumar Mandal** has been appointed as **Member of the State Wild Life Board, Govt. of West Bengal, 2011**.
4. **Prof. Tapan Kumar Mandal** has been elected as **General Secretary, Indian Pharmacological Society** first time from Veterinary Science and also first time from West Bengal.
5. Prof. T. K. Mondal, Deptt. of Veterinary Pharmacology & Toxicology acted as **Guest Speaker** in the **International Conference on Recent update in Pharmacology** organized by Nepal Pharmacological Society at Institute of Medical Science, Dharan, Nepal.
6. Dr. Amlan Kr. Patra, Deptt. of Animal Nutrition received **Dr. Gouri Ganguly Memorial award as young scientist from the Indian Science Congress Association**.
7. Prof. S. Biswas, Deptt. of Livestock Products Technology received the **Fellowship of Society for Applied Biotechnology – 2011**.



8. **Dr. S. K. Nandi**, Deptt. of Veterinary Surgery & Radiology received **Society of Biotechnology (SAB) Award – 2011** for 'Excellence in Animal Biotechnology'.
9. **Dr. S. N. Joardar** and other co-workers, Deptt. of Veterinary Microbiology received the **Best Research Paper Award** published in Indian Journal of Comparative Microbiology, Immunology and Infectious Diseases from Indian Association of Veterinary Microbiology, Immunology and Specialists in Infectious Diseases (IAVMI) on 6th September, 2012.
10. **Prof. Chanchal Guha**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **S.K. Mylsamy Gounder Gold Medal – 2011** for his excellence in the field on Poultry Medicine from Indian Society for Veterinary Medicine.
11. **Prof. Chanchal Guha**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **Bharat Jyoti Award** from **IIFS** for his outstanding performance & remarkable role.
12. **Dr. Ujjal Biswas**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **Bharat Jyoti Award** from **IIFS** for his outstanding performance & remarkable role.
13. **Dr. Ujjal Biswas**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **"Rajib Gandhi Excellence Award – 2010"** from **IIFS** for his outstanding individual activities and distinguished service to the Nation.
14. **Dr. Ujjal Biswas**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **"Indo Nepal Ratan Award – 2010"** from **EGSI** in recognition of sterling merit excellent performance & outstanding contribution for the progress of the Nation & Worldwide.
15. **Dr. Ujjal Biswas**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **"Rashtriya Vidhya Samman Puruskar – 2011"** from **EGSI** in recognition of in reorganization of Sterling Merit Excellent Performance and outstanding contribution for the progress of nation & world wide.
16. **Dr. Ujjal Biswas**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **"Rashtriya Gourav Award – 2011"** from **IIFS** in recognition of in reorganization of meritorious Services, Outstanding Performance and Remarkable Role.
17. **Dr. Ujjal Biswas**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **"Glory of India Gold Medal – 2011"** from **IIFS** in recognition of remarkable contribution to Indians National Prestige.
18. **Dr. Ujjal Biswas**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **"The Best Citizens of India Award 2011"** from International Publishing House.
19. **Dr. Ujjal Biswas**, Deptt. of Veterinary Epidemiology & Preventive Medicine, received the **Nobel India Award for Education Excellence – 2011** for his outstanding contribution and lifetime achievement from IOBRD.
20. **Prof. (Dr.) Siddhartha Basu** of Veterinary Gynaecology & Obstetrics received the fellowship of **National Academy of Veterinary Science, New Delhi, India.**
21. **Prof. J. D. Ghosh** of Veterinary Parasitology received Best paper presentation award in the **22<sup>nd</sup> National Congress of Parasitology** organized by Indian society for Parasitologist in 2010.
22. **Dr. S. Pandit** of Veterinary Parasitology received best paper presentation award in the **18<sup>TH</sup> W. B. State**





**Science & Technology Congress** organized by the W. B. State Council of Science & Technology, R. K. Mission Residential College in association with Paschim Banga Vigyan Mancha.

23. **Dr. Amlan Kr. Patra**, Deptt. of Animal Nutrition received Boys Cast Fellowship (DST) in 2010.
24. **Dr. Amlan Kr. Patra**, Deptt. of Animal Nutrition received **Young Scientist award of Animal Nutrition Association in 2010.**
25. **Dr. Amlan Kr. Patra**, Deptt. of Animal Nutrition received **Dr. K. Prodhon Award, A.N.S.I.** in 2011.
26. **Dr. S. Batabyal**, Deptt. of Veterinary Biochemistry received the fellowship of **Society of Applied Biotechnology (F.S.A.B)** for remarkable achievement in the field of **Animal Biochemistry and Biotechnology.**
27. **Dr. S. N. Joardar**, Deptt. of Veterinary Microbiology received the fellowship of **Society of Animal Biotechnology (SAB)** for remarkable achievement in the field of **Animal Bioechnology.**
28. **Dr. S. N. Joardar**, Deptt. of Veterinary Microbiology received the best **Research Paper Award** in Animal and Fishery Science in the **17<sup>th</sup> West Bengal State Science & Technology Congress.**
29. **Dr. S. N. Joardar**, Deptt. of Veterinary Microbiology received the best **Research Paper Award** in Animal and Fishery Science in the **19<sup>th</sup> West Bengal State Science & Technology Congress.**
30. One project on "*Effect of some herbal product on wound healing in pigs*" in collaboration with **Holistic health Centre, 73 Chr. Lada Street, 145 62 Kifisia, Greece** under supervision of **Prof. T. K. Mandal** is going on.
31. **Dr Sarbani Hazra**, Deptt. of Veterinary Surgery & Radiology received an Appreciation award for paper presentation at the **Annual conference of ISVS**, November 11th -13th 2011, Kolkata.
32. **Dr Sarbani Hazra**, Deptt. of Veterinary Surgery & Radiology became a member of **Member of Association for Research in Vision and Ophthalmology (ARVO)-2011-2012.**
33. **Dr Sarbani Hazra**, Deptt. of Veterinary Surgery & Radiology became a member of **Member of Editorial Board for journal "World Journal of anesthesiology"** 2011-2015.
34. **Dr. Samit Kumar Nandi**, Reader, Department of Surgery & Radiology visited **Nanyang Technological University, Singapore** to present research paper in the 2nd International Conference on Cellular and Molecular Bioengineering.
35. **Dr. Samit Kumar Nandi**, Reader, Department of Surgery & Radiology received **CSIR Technology Award-2010.**
36. **Dr. Samit Kumar Nandi**, Reader, Department of Surgery & Radiology received **CSIR-CGCRI Diamond Jubilee Award** for best paper in 2010-11.
37. **Dr. Samit Kumar Nandi**, Reader, Department of Surgery & Radiology received **SAB Award** for "**Excellence in Animal Biotechnology**" 2011.
38. **Dr. Samit Kumar Nandi**, Reader, Department of Surgery & Radiology received **IUSSTF Travel support** 2011 from Indo-US Science & Technology for Visiting Scientist (Adjunct Faculty) in USA.
39. **Dr. Samit Kumar Nandi**, Reader, Department of Surgery & Radiology received **Appreciation Award in Orthopaedic Surgery Session - 2011** from Indian Society for Veterinary Surgery.



## N.5. ACHIEVEMENTS OF THE STUDENTS

During 2010-12, important performance of the students of this University are as follows ::

1. No. of students qualified in ICAR Examination for Post Graduate studies :
  - Biochemistry/ Biotech : 2
  - Animal Science : 2
  - Veterinary Science : 3
2. No. of students qualified in All India Exam. Conducted by JNU for Biotechnology : 2
3. No. of students received INSPIRE national fellowship for Doctoral Programme :
  - Veterinary Science – 2
  - Fishery Science – 1
4. No. of students qualified in NET conducted by ASRB : 8
5. Awards/ Fellowship received :

Name of Student	Department	Award/Fellowship
Dr. Sajal Kumar Dutta	M.V.Sc. scholar, Veterinary Anatomy & Histology	Dr. A.M.Srivastav outstanding M.V.Sc (Anatomy) thesis award for the year 2009
Dr. Souvik Mondal	Animal Nutrition	S.P. Arora, A.N.S.I., 2011
Dr. Anjan Mondal	Ph.D. student, Veterinary Microbiology	Rajib Gandhi National Fellowship
Dr. Gautam Bordoloi	Ph.D. student, Veterinary Parasitology	Rajib Gandhi National Fellowship
Dr. Akhilesh Kumar Mishra (2011), Dr. W. Ramdas Singh (2011) Dr. Pabitra Hriday Patra (2012)	Ph.D. students, Veterinary Pharmacology and Toxicology	Inspire Fellowship
Sanjay Kumar Rewani	Ph.D. scholar, Veterinary and Animal Husbandry Extension Education	Best Publication Award-2011 Awarded By - Society For Advancement Of Human And Nature (Sadhna)®

## N.6. ORGANIZATION OF NATIONAL CONFERENCE / SYMPOSIUM / CONGRESS/ SEMINAR ETC.

1. A summer research programme for 2 months (June-July 2011) was organized by the Department of Veterinary Epidemiology & Preventive Medicine for DVM students of Cummings school of veterinary medicine, Tufts University, USA.



**O****OUR MISSION**

- ☛ To produce better quality of Veterinary doctors, dairy technologists and fishery specialists in the State.
- ☛ To create self-employment through livestock, dairy and fish farming.
- ☛ To develop women empowerment.
- ☛ To conduct need-based research on livestock, dairy and fishery sectors.
- ☛ To disseminate improved livestock, dairy and fishery practices at the door steps of the stakeholders.



## P

## OUR CONTACT

Name & Designation	Phone No.	e-mail
Prof. C. S. Chakrabarti Vice-Chancellor	033-25571986 (Fax) 033-25563450 (O) 9433136014 (M)	csc_chakcs@yahoo.co.in zoocsc_bu@indiatimes.com cschak@rediffmail.com
Prof. P. Biswas Registrar (Acting)	033 – 2556 3123 9433047745 (M)	drpbiswas56@yahoo.com
Prof. T. K. Mondal Dean, Faculty of Vety. & Anim. Sciences	033-25569234 (O) 9433136116 (M)	drtkm48@yahoo.co.in
Prof S. Biswas Director of Research, Extension & Farms AND Controller of Examinations (Acting)	033-25580278 (O) 9433374099 (M) 033-25563396 (Tele Fax)	dref.wbuaafs@gmail.com lptsubhasish@yahoo.co.in
Prof. M. K. Sanyal Dean, Faculty of Dairy Technology	033-25876307 (O) 9433614836 (M)	sanyal_mk@rediffmail.com
Prof. K. C. Dora Dean, Faculty of Fishery Sciences	033-24328763 (O) 9433333004 (M)	kc_dora@yahoo.co.in
Mr. Shyamal Chattopadhyay Finance Officer	033-25285294 (O) 033-25328058 (Fax) 9804439370 (M)	shyamal1960.chat@gmail.com
Central Library	033-25280840 033-25870521	response_nitindia@yahoo.co.in
Farmers' Advisory Service	033-25563396	kajer.jonno@gmail.com dref.wbuaafs@gmail.com
University website	<a href="http://wbuafscl.ac.in">http://wbuafscl.ac.in</a>	



## ANNUAL REPORT 2010 - 2012

### Q

### EDITORIAL BOARD

1. Chairman : Prof. C. S. Chakrabarti, Hon'ble Vice Chancellor
2. Editor : Prof. Subhasish Biswas, Director of Research,  
Extension & Farms And Controller of  
Examinations (Acting)
3. Associate Editor : Dr. Sourav Chandra, Deputy Registrar
4. Member : Prof. P. Biswas, Regsitrar  
Prof. T. K. Mondal, Dean, F/O. Vetermary &  
Animal Sciences  
Prof. M. K. Sanyal, Dean, F/O. Dairy Technology  
Prof. K. C. Dora, Dean, F/O. Fishery Sciences

### R

### PUBLICATION BOARD

1. Dr. Sourav Chandra, Deputy Regsitrar : Convenor
2. Mrs. A. Biswas, Computer Programmer : Joint Convenor
3. Dr. B. K. Biswas, Scientist : Member
4. Dr. B. K. Chand, Farm Manager : Member
5. Dr. (Mrs.) S. Das, Scientist : Member
6. Prof. A. Samanta, Deptt. of LPM and DSW : Member
7. Dr. S. Mukhopadhyay, Deptt. of Veterinary Pathology : Member
8. Dr. T. K. Maiti, Deptt. of Dairy Microbiology : Member
9. Dr. S. Batabayal, Deptt. of Veterinary Biochemistry : Member
10. Prof. T. J. Abraham, Deptt. of Aquatic Animal Health : Member
11. Mr. C. S. Gupta, Deputy Librarian : Member