

R E P O R T

U.P. Pt. Deen Dayal Upadhyaya Pashu Chikitsa Vigyan
Vishwavidyalaya Evam Go Anusandhan Sansthan
Mathura



Oct. 2001
to
Mar. 2006



REPORT

OCT. 2001 TO MAR. 2006



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**UTTAR PRADESH PANDIT DEEN DAYAL UPADHYAYA PASHU CHIKITSA VIGYAN
VISHWAVIDYALAYA EVAM GO ANUSANDHAN SANSTHAN
MATHURA - 281001**

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Foreword



It needs no testimony that Veterinary College Mathura has made landmark contributions in the field of Veterinary education and research. As per the mandate and need, this institution has always stood firmly in producing well trained and efficient human resource and in the service of poor and marginal farmers and livestock owners of the state and country. I am very well aware about the financial constraints and administrative hindrances due to which growth and proliferation of this Institution had come to almost stand still. However, establishment of Veterinary University in 2001 provided a scope for Veterinary College to regain its lost place of pride. After establishment of University, there has been tremendous improvement in terms of infra-structural and laboratory facilities, still much more needs to be done to attain excellence. As the Founder Vice Chancellor of this University, it is indeed a matter of great privilege and pride for me to present the developments, salient achievements and contributions of the University since its establishment in 2001 in the form of First Progress Report of the University.

We are grateful to Dr. Mangla Rai, the Director General ICAR, Dr. S. K. Mehta, Dr. J. C. Katyal and Dr. Mruthyunjaya, DDGs (Education), Dr. V. K. Taneja, DDG (Animal Sciences), Dr. G. C. Tiwari, ADG (EPD), Dr. H. N. Nainawatee, ADG (HRD II) and other Additional Director Generals of ICAR and U.P. Livestock Development Board and Department of Animal Husbandry and Dairying, Govt. of India for the constant financial support and help.

During the period under report, University received five out-sided funded projects on various aspects of animal health and production from ICAR, NATP, UPCAR and DST worth Rs. approx. eighty lacs and an assistance of Rs. 90 lacs from UPLDB, Lucknow and Govt. of India for establishment of Hi-Tech Semen Technology Laboratory.

I am very well aware about the limitations and potential of the teachers and scientists of Veterinary College. With in their limited resources, particularly teachers, faculty of Veterinary College has been delivering their best in terms of the graduates and post-graduates of high scholastic order. Progress Report of the University in itself is a testimony to the hard-work and sincerity of the faculty of this University. I congratulate the Faculty Members for presenting this report.

I also congratulate and complement the Editor and Co-Editor of the Progress Report for their untiring efforts in compiling and publishing this Report. I hope that the information presented in this Report will be helpful in retrospection and furtherance of achieving the objectives with which this Veterinary University was established.

I wish that this Veterinary University makes further strides and distinguishes itself to be one of the best Veterinary Institutions in India in near future.

(S. K. Garg)
Founder Vice Chancellor



Message



I am very much pleased to know that after establishment of Veterinary University, its first Progress Report is being published. Progress report is the mirror of all the activities of any Institution. I am sure that the erstwhile U.P. Veterinary College, Mathura will regain its lost place of pride in the newly established Veterinary University. Acute shortage of faculty members is a cause of great concern. In spite of the limited human resources, Faculty Members and Students of this Institution have excelled in almost all the fields and left a bench-mark for others.

I congratulate the Faculty Members for their significant contributions in the field of teaching and research and the Editor & Co-Editors of the Progress Report for compiling and publishing this Report.

(R. D. AGRAWAL)
Vice Chancellor

ABOUT THE UNIVERSITY

Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura, first of its kind in the State and fourth in the Country, was established by Government of Uttar Pradesh vide U. P. Act. No. 27 of 2001 on 25.10.2001 with the College of Veterinary Science & A.H., the erstwhile U.P. College of Veterinary Science & Animal Husbandry, Mathura as its main constituent College.

Brij area is known for Lord Krishna and its animal wealth, particularly cows. There are large number of Gau-shalas in and around Mathura having hundreds and thousands of cows. The whole of Brij kshetra is famous for its milk and milk products (doodh, dahi, makhan, pera etc.). Recognizing the significance of livestock of this area, the erstwhile U.P. College of Veterinary Science and Animal Husbandry was established in Mathura by Govt. of U.P. in 1947. It was the first Veterinary College in Asia to confer the degree in Veterinary Science. Veterinary College has contributed significantly not only in terms of number of graduates and post-graduates of high scholastic order, but also quality research of national and international standards. This College has a glorious past and the distinction of having its alumni holding high positions in India and abroad as teachers, research workers, policy makers, consultants and administrators.

In the year 1975, Veterinary College was made a constituent college of the newly established C. S. Azad University of Agriculture and Technology, Kanpur. However, in view of the requirement of trained and more competent veterinarians and other manpower in the field of fisheries and allied disciplines and to give a fillip to research on different aspects of animal production, Govt. of Uttar Pradesh established Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura.

University is located on old Mathura - Agra road and is about 5 km from Mathura junction railway station and 4 km from new bus stand. The University has 782.34 acres prime land in Mathura, and a big agriculture farm of about 1400 acres at Madhunikund, about 20 km. from the main campus.

The Veterinary University in the state was established with the basic objectives and mandate of :

- Imparting high quality education in the field of Veterinary Science and A.H. and allied disciplines including fisheries;
- Undertaking basic and need-based research in the field of Veterinary Science & A.H. and allied disciplines including fisheries;
- Ensuring transfer of technology to the doorsteps of farmers and people rearing animals.

Presently, all the offices of the University, including that of Vice-Chancellor, are housed in the Administrative Block of College of Veterinary Science and A.H., Mathura. Veterinary College has almost sufficient skeleton structure in terms of land, space, buildings, laboratories, residences and hostels for boys and girls, teacher's home, and a V.I.P. Guest House.

As envisaged in the Act of University, in addition to the College of Veterinary Science & Animal Husbandry, four other constituent colleges/faculties will be started in near future in a phased manner to generate trained and competent human resource.

- ❖ **College of Fisheries**
- ❖ **College of Biotechnology**
- ❖ **College of Livestock Products Technology**
- ❖ **College of Animal Industry and Business Management**

Establishment of these Colleges will provide excellent opportunities to the students of the State of U.P. and other states to seek other professional degrees and vocational training in different fields of

Veterinary Science and Allied disciplines to improve their career prospects.

Directorate of Research and Directorate of Extension Education have been established to give impetus to research and extension activities, respectively. In order to focus research on cattle, a separate Go-Anusandhan Sansthan will also be established in near future.

OUR ADMINISTRATORS

DR. S. N. MAURYA, OSD

Dr. S.N.Maurya joined this University as the founder Officer on Special Duty on 29.12.2001. Before taking up this assignment, Dr. Maurya was working as Professor and Head, Department of Gynaecology and Obstetrics in G.B. Pant University of Agricultural and Technology, Pantnagar. Dr. Maurya with an excellent academic carrier of more than 35 years, took lot of pains, spent long hours and worked till late in the evening, in giving new directions and planning future strategies for transforming the ideas of establishment of University into reality. He with few of the dedicated officers/teachers and employees prepared the Xth five-year plan proposal and the budget even without any Finance Officer. He with his staff, meticulously and successfully conducted the First Pre-Veterinary Test (PVT) 2002. Dr. Maurya with his administrative skill and acumen, untiring efforts and personal involvement was able to get the wheels of University in motion and on right track. Dr. Maurya relinquished the charge of O.S.D. on August 11, 2002 and joined back his parent institute.



DR. D. P. SINGH, OSD

Dr. D. P. Singh, Professor and Head of Microbiology and Former Dean Veterinary College, Mathura took over the reins of University from Dr. S.N. Maurya on 12. 08. 2003 as second O.S.D. of the University. Dr. Singh's academic and administrative career spanned over almost 30 years. Dr. Singh gave further pace to the process of development and carried the University forward on the track set in motion by Dr. Maurya. Dr. Singh relinquished the office of O.S.D. on 21.3.2003 after appointment of Dr. Shri Krishna Garg as the first Vice-Chancellor of the University.



DR. SHRI KRISHNA GARG, FOUNDER VICE CHANCELLOR

Dr. Shri Krishna Garg, a native of Brij Bhumi, graduated in the first batch of G. B. Pant University of Agriculture & Technology, Pantnagar in 1964. Dr. Garg had the distinction of having a long and par excellence academic carrier spanning over almost four decades and vast administrative experience. He took over as the founder Vice-Chancellor of this University on March 21, 2003.

With a strong inbuilt humane character and social concern for everybody, Dr. Garg earned the good will and co-operation of every officer and employee of the University. By virtue of Dr. Garg's optimism, self-confidence and administrative skill, he successfully completed P.V.T. 2003, 2004 and 2005 without any difficulty or dispute. He put his best efforts to improve the financial status of the University with the help of I.C.A.R., New Delhi. He was able to get funds for modernization and mechanization of the agricultural farm, Madhuri Kund and D.D.D. Farm Mathura, establishment of ARIS Cell and Local Area Network (LAN), upgradation of University Library and providing internet facility in all the departments and offices of the University.



Dr. Garg had been very successful during his tenure and made significant contributions in developing the University and got the grant of approximately Rs. ten crores released from Govt. of U.P. for construction of the Administrative block, College of Biotechnology, College of Animal Business Management, Boys Hostel and Residential Complex. He also got the EFC cleared from state Government for more than Rs. 40 crores for establishment of Go-Anusandhan Sansthan, College of Fisheries, University Auditorium, Gymnasium Hall, Hostels, University boundary wall and roads etc.

Establishment of Publication Division, Directorate of Counseling and Placement, two Conference Halls with latest audiovisual aids and excellent sitting facilities and a Hitech Lab for training of field vets, taking over the KVK, Mathura from CSAUA & T, Kanpur and modernization of different laboratories are the highlights of his tenure. Full credit for the six monthly publication of University Newsletter and First Progress Report of the University since inception and placement of some students through campus interview, goes to him.

For attaining academic excellence and improving the technical competency of faculty members, he encouraged all the faculty members to participate in training programmes, workshops, conferences and other academic activities. Similarly, he was instrumental in promoting sports and extra-curricular activities amongst students and sent students of different classes on educational tours, inter university youth festivals and sports meet.

For the benefit of farmers, he ensured transfer of technology and latest knowledge about agricultural and animal husbandry practices through Kisaan Melas, Kisaan Goshthis, demonstrations and mobile clinics etc. He readily came forward to implement the ASCAD programme of Government of India for imparting training to field Veterinary officers and extension workers in important areas of concern. Dr. Garg successfully completed his three years of term of office on 20th March 2006. The University owes its sincere thanks and gratitude to Dr. Garg for his great selfless service to the University.

DR. R. D. AGRAWAL, VICE CHANCELLOR

Dr. Ramji Das Agrawal, Professor and Head, Department of Parasitology has been given the charge of Vice Chancellor of the University w.e.f. March 21, 2006. Dr. Agrawal is an alumnus of erstwhile UP College of Veterinary Science and Animal Husbandry, Mathura. After taking over the charge, he has given lot of emphasis on improving the academic environment in the University, particularly punctuality of students in the classes.



COLLEGE OF VETERINARY SCIENCE & ANIMAL HUSBANDRY

Since establishment in 1947, College of Veterinary Science and Animal Husbandry, Mathura has contributed significantly not only in terms of generation of trained human resource, but also the research contributions have been of high academic standard which were internationally recognized. This Institution has a very glorious past, however, over the years acute shortage of funds and poor faculty strength had been a major hindrance in the development and progress of this Institution. Still, with in our limited financial and human resources, we have been striving hard to take this College on newer heights. Present report will give an insight of the progress, contributions and achievements of the teachers and scientists in the area of veterinary and animal sciences.

DR. H. N. SINGH



At the time of establishment of Veterinary University, Dr Singh was the Dean of Veterinary College, Mathura and he continued in this position till January 18, 2005. During his tenure of almost four years, lot of infra-structural facilities were added to different Departments and Hostels. During his tenure, The World Veterinary Day was celebrated for the first time on a very large scale. Blood Donation Camp, Ambulatory Clinical Camp for free vaccination of dogs, dog-show and cultural evening were the highlights of that Day. Mr. K. P. S. Gill, Ex. DGP (Punjab) was the Guest of Honour and provided vaccine for vaccination of animals from Balram Project. Dr. Singh encouraged the students to participate in extra curricular activities including sports. He also motivated teacher to write practical manuals for the UG students and make use of multi-media in teaching.



DR. S. D. SHARMA



Dr. Sharma took over as the Dean of the College w.e.f. January 19, 2005. Immediately after his assuming office, UG's inspection team consisting of Dr. R. M. Acharya (Former DDG Animal Science), Dr. N. K. Bhattacharya (Former Director CIRG) and Dr. M. S. Oberoi (Deputy Veterinary College, PAU, Ludhiana) visited the Institution for three days (March 3-S 2005) to inspect the basic minimum requirements for UG teaching. Campus Interview by a multinational company was conducted in the college for the first time during his tenure.

Dr. Sharma is striving to regularize the academic session of the College and upgrade the teaching and research facilities in different Departments.



Progress report of different Departments of the College is as follows :-

ANIMAL GENETICS AND BREEDING

For improving the genetic potential of livestock, State Government established Animal Genetics section in the Livestock Research Station at State Livestock cum Agriculture Farm, Mathura in the year 1945. Late Dr. R. B. Singh, M.Sc., Ph.D. (Edinburgh), a student of Noble laureate, Dr. H. J. Muller and Dr. J. L. Lush, was appointed as the first Animal Geneticist. After establishment of Veterinary College Mathura in the year 1947, office of Animal Geneticist under the leadership of Late Dr. R. B. Singh was transferred to the College to integrate teaching, research and extension programmes in Animal Genetics and Breeding. In 1956, the post of Animal Geneticist was redesignated as Professor of Animal Genetics and Breeding. During this period, Zonal Research Stations were established at Pashulok (Dehradun), Chak-Ganjaria (Lucknow) and Arazilines (Varanasi) to conduct research work on sheep, poultry and Gangatiri cattle, respectively. Dr. R. N. Desai, M.S., Ph. D. (Minnesota) took over as Professor of Animal Genetics and Breeding in 1961 and under his leadership departmental activities further augmented. In 1965, Dr. B. P. Singh, MVSc (A.H.), Ph.D. (Minnesota) took over as Professor of Animal Genetics and Breeding. In addition to the other ongoing research projects, a scheme for Progeny Testing of Hariana and Murrah bulls was launched at three farms of the State namely- State Livestock cum Agriculture Farm, Madhurikund (Mathura), District Dairy Demonstration Farm, Mathura and State Livestock cum Agriculture Farm, Babugarh (Meerut). With the assistance from ICAR, one centre of All India Coordinated Research Project on Poultry for eggs was established in 1971 and gradually the small College Poultry Farm developed into a large poultry complex and became the nucleus for the start of Department of Poultry Science in the year 1973. Since its establishment, the department is actively engaged in three major activities viz. Teaching, Research and Extension.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. S. N. Shukla	MVSc PhD	Professor and Head
Dr. R. C. Sharma	MVSc PhD	Professor
Dr. H. N. Singh	MVSc PhD	Professor
Dr. K. C. Sharma	MVSc PhD	Professor
Dr. M. R. Singh	MA PhD	Asst. Stician/Asst. Professor
Sh. Rakesh Goel	MSc M Phil	Asst. Professor

TEACHING PROGRAMMES :

The graduate teaching programme in the discipline started in 1952 and the postgraduate programme started in 1956. Since 1962, department is recognized for Ph.D. work.

BVSc&AH Programme :

I Semester	AGB – 111 (Biostatistics and Elementary Computer Application)	2+1
II Semester	AGB – 121 (Principles of Genetics and Population Genetics)	2+1
III Semester	AGB – 211 (Principles of Animal Breeding)	1+1
IV Semester	AGB – 221 (Livestock Breeding System)	1+1

Postgraduate Programme :

MVSc (Previous)

Paper I	Advance Genetics & Cytogenetics
Paper II	Animal Breeding - Genetics of Population
Paper III	Animal Breeding

Statistics is a minor subject in M.V.Sc. (Previous).

MVSc (Final)

Research work and Submission of thesis

PhD Programme

PhD degree programme is in the traditional system without any course work and award of degree is only by research work and submission of thesis.

RESEARCH PROGRAMME :

Right from its beginning, Department of Animal Genetics and Breeding has executed many research schemes and programmes.

Non-Plan Research Schemes of Government of U.P.

S. No.	Name of the Scheme	Duration
1	Animal Genetics Section of Livestock Research Station : Artificial Insemination Scheme	1956 onward
2	Heritability of Economic Characters of Cattle and Buffaloes	1956 onward
3	Statistical Study of Livestock Production, Management and Intensification of Research in Animal Husbandry and Veterinary Science	1961 onward
4	Poultry Breeding Scheme at Livestock Research Sub-Station, Chak Ganjaria, Lucknow	1962 onward
5	Scheme for Progeny Testing of Haryana and Murrah bulls for Systematic Improvement of Village Cattle in U.P.	1964 onward

Plan Research Schemes from other agencies :

S.No.	Name of Scheme	Funding Agency/Duration
1	Characterization and conservation of Bhadawari buffalo <i>Principal Investigator : Dr. H. N. Singh and Co. PI : Dr. K. C. Sharma, Rakesh Goel</i> <i>Budget allocated : 30.83 Lakh</i>	NATP (ICAR) Oct 1999 to Dec 2004
2	Conservation and multiplication of Bhadawari buffalo through cryopreservation of semen <i>Principal Investigator : Dr. H. N. Singh</i> <i>Budget allocated : 5.00 Lakh</i>	UP LDB April 2005 to March 2006

CONTRIBUTIONS AND ACHIEVEMENTS :

- ❖ Department provided A.I. services for cattle and buffaloes of the nearby villages of the University. During the aforesaid period, a total number of 886 cows and 1120 buffaloes have been inseminated. Besides this, 136 cows and 594 buffaloes have been examined for pregnancy diagnosis and reproductive disorders.
- ❖ Superior germplasm of Bhadawari buffaloes was provided to NBAGR, Karnal for the conservation of Bhadawari breed of buffalo.
- ❖ Semen (Germplasm) of Bhadawari bulls was provided to Agra region for breeding of Bhadawari buffaloes in the area of its breeding tract.
- ❖ Mr. Rakesh Goel, Assistant Professor, Statistics - Creative Designer of University News Letter.

- ❖ Department organized "Cattle Show" in the University Kisan Mela held on 25 Oct 2004.
- ❖ Dr. H. N. Singh, Professor was elected Vice President of Society for Conservation of Domestic Animal Biodiversity (SOCDAB) in 2005.
- ❖ Dr. H. N. Singh, Professor was elected Executive Member of Indian Society of Animal Genetics and Breeding in 2005.
- ❖ Dr. H. N. Singh, Professor was Member of Institutional Management Committee, Member of Scientific Research Committee and Chairman, Departmental Promotion Committee, and Research Advisory Committee, CIRG, Makhdoom, Farah, Mathura from 08-2005.
- ❖ Dr. H. N. Singh, Professor, Member, Editorial Board, Indian Veterinary Medical Journal, Lucknow.
- ❖ Dr. H. N. Singh, Professor nominated as one of the Members of Agriculture Education Committee, UPCAR, Uttar Pradesh.
- ❖ Dr. S. N. Shukla, Professor and Head, nominated as one of the Members of State Advisory Committee for Livestock Breeding by the Director, Animal Husbandry Department, Uttar Pradesh.
- ❖ Department is regularly imparting training to the Ex-military personnels regarding different aspects of Animal Husbandry including breeding and artificial insemination (AI).
- ❖ Mr. Rakesh Goel, Assistant Professor, Statistics is performing additional duties of Deputy Controller of Examination w.e.f. April 22, 2004.
- ❖ Dr. M. R. Singh, Assistant Professor has been assigned the duties of Public Information Officer (PIO) w.e.f. Aug 1, 2005.
- ❖ Dr. H. N. Singh, Professor was the first Dean of College of Veterinary Science and Animal Husbandry, U. P. Pt. Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura
- ❖ Dr. S. N. Shukla, Professor & Head, appointed as inspector by VCI to inspect the facilities of College of Veterinary Science & A. H., Bikaner, Hyderabad and Tirupati in 2005.
- ❖ Dr. K. C. Sharma, Professor, nominated as one of the members for State level culling committee of Animal Husbandry Department.
- ❖ Department organized "Cattle Show" through KVK Kisaan Mela in the University held on 31 Jan 2006.

SEMINAR, CONFERENCE, TRAINING, ORGANIZED BY THE DEPARTMENT

Department organized a training programme on "Elementary Computer Education to Veterinary University Staff" w.e.f 16th of August 2003 to 30th of September 2003. A total of eighteen (18) University employees were trained in the computer applications and uses. All of them are working independently in different departments and offices of the University.

PARTICIPATION IN CONFERENCES / SEMINARS :

S.No.	Name of Participant	Seminar/Conference/Symposium
1.	Dr. H. N. Singh Dr. S. N. Shukla Dr. R. C. Sharma Dr. K. C. Sharma Dr. Rakesh Goel	"4th Asian buffalo Congress on Buffalo For Food Security and Rural Employment" held at New Delhi (Feb. 25 - 28, 2003)

2.	Dr. H. N. Singh Dr. K. C. Sharma Dr. Rakesh Goel	Brain storming session on "Animal Genetic Resources of U.P." held at NBAGR, Karnal (Nov. 28, 2003)
3.	Dr. H. N. Singh Dr. S. N. Shukla Dr. R. C. Sharma Dr. K. C. Sharma Dr. M. R. Singh Dr. Rakesh Goel	Zonal Workshop organized by UP LDB, Zonal Centre, Agra at U. P. Pt. Deen Dayal Veterinary University, Mathura (Nov. 6, 2003)
4.	Dr. H. N. Singh	"Asian Congress of Zoo & Wild life Veterinarians" held in Lucknow (Feb. 4-5, 2004)
5.	Dr. M. R. Singh	National seminar on "Opportunities and Challenges in nutrition and feeding management of sheep, goat and rabbit for sustainable production" held at Avikanagar, Rajasthan (Feb. 10-12, 2004)
6.	Dr. H. N. Singh Dr. K. C. Sharma Dr. Rakesh Goel	National Symposium on "Livestock Biodiversity vis-à-vis Resource Exploitation: An Introspection" organized by Society for Conservation of Domestic Animal Biodiversity and National Bureau of Animal Genetic Resources, Karnal (Feb. 11-12, 2004)
7.	Dr. S. N. Shukla Dr. H. N. Singh Dr. K. C. Sharma Dr. M. R. Singh Dr. Rakesh Goel	National symposium on "Conservation and propagation of indigenous breeds of cattle and buffaloes" at College of Veterinary and Animal Sciences, Pantnagar (Feb 26-28, 2004)
8.	Dr. H. N. Singh Dr. S. N. Shukla Dr. R. C. Sharma Dr. K. C. Sharma Dr. M. R. Singh Dr. Rakesh Goel	National Seminar on "Selection of breeding bulls, frozen semen production and its certification at National level", at U. P. Pt. Deen Dayal Veterinary University, Mathura (March 11-12, 2004)
9.	Dr. S. N. Shukla Dr. K. C. Sharma	Silver Jubilee Seminar on "Recent advances in small ruminants production system" held at CIRG, Makhdoom (Farah) (July 12-14, 2004)
10.	Dr. H. N. Singh Dr. K. C. Sharma Dr. Rakesh Goel	National Conference on "Animal Genetic Resources of India" at National Bureau of Animal Genetic Resources, Karnal (Nov. 4, 2004)
11.	Dr. H. N. Singh	International Congress of Canine Practice and Symposium on emerging Challenges in Canine Practice and II - Annual Convention of Indian Society for Advancement of Canine Practice (ISACP) held at New Delhi (Feb. 9-11, 2005)
12.	Dr. K. C. Sharma Dr. Rakesh Goel	National Symposium on "Domestic Animal Diversity Status, Opportunities and Challenges" held at National Bureau of Animal Genetic Resources, Karnal (Feb. 10 - 11, 2005)
13.	Dr. H. N. Singh Dr. K. C. Sharma	National Seminar on "Field Progeny Testing in Dairy Animals: Methodology, Constraints and Solutions" held at IVRI, Izatnagar (Feb. 24-25, 2005)

14.	Dr. H. N. Singh Dr. S. N. Shukla Dr. K. C. Sharma	VIII National Conference on "Animal Genetics and Breeding - National Livestock Breeding Policy" at CIRG, Makhdoom, Farah (Mar. 8-10, 2005)
15.	Dr. S. N. Shukla	Seminar on "Revision of Undergraduate Course Curriculum (Basic and Production Subject)" organized by Veterinary Council of India at CCS HAU, Hisar (Apr. 25-26, 2005)
16.	Dr. H. N. Singh Dr. R. C. Sharma	Workshop on "Genetic improvement in cattle and buffalo" held at Yashada, Pune organized by Bombay Veterinary College, Mumbai (Jul. 16-17, 2005)
17.	Dr. H. N. Singh Dr. K. C. Sharma Dr. Rakesh Goel	National Symposium on "Conservation and Improvement of Animal Genetic Resources under Low input system: Challenges and Strategies" held at NBAGR, Karnal (Feb. 9-10, 2006)

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES :

Ph.D.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. V. K. Singh	2004	Sire evaluation for early and lifetime economic traits and development of selection criteria in Sahiwal cattle.	Dr. H. N. Singh Dr. S. K. Singh

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. Prakash Kumar	2002	Molecular characterization of casein polymorphism in Indian Goat Breeds.	Dr. S. N. Shukla Dr. P. K. Rout
2.	Dr. Ashish Kumar Srivastava	2002	Genetic study on the Reproductive traits of Haryana Cows.	Dr. K. C. Sharma Dr. M. R. Singh
3.	Dr. Prakash Chandra Sharma	2003	Serum Lysozyme a marker for enhancing immunocompetence in goats.	Dr. S. N. Shukla Dr. P. K. Rout
4.	Dr. Sanjeev Kumar Agrawal	2003	Assessing genetic diversity among some livestock sp. through DNA markers.	Dr. R. C. Sharma Dr. Deepak Sharma
5.	Dr. Deepak Bhatia	2003	Genetic study of production efficiency traits in Sahiwal cattle maintained in northern Indian plain.	Dr. V. K. Arora
6.	Dr. Kailash Chandra	2004	Genetic and phenepic studies on the presistency of milk production in murrah buffalo	Dr. R. C. Sharma
7.	Dr. Shivendra Kumar Singh	2005	Leptene gene polymorphism in Indian Goat Breeds	Dr. S. N. Shukla Dr. P. K. Rout
8.	Dr. Amitosh Kumar	2005	Role of male germplasm in conservation of Bhadawari buffalo	Dr. K. C. Sharma

PUBLICATIONS :

1. Pandey, S. K.; Arora, V. K. and Singh, Rinkan (2001). Genetic studies of some economic traits in Haryana cows. Indian Vet. Med. J. 25(4): 325-328.
2. Pandey, S. K.; Arora, V. K.; Goel, Rakesh and Singh, Rinkan (2001). Genetic and phenotypic studies of some production traits of Haryana Cattle, Indian J. Anim Res. 35(2): 129-131.

3. Singh, M. R. (2001). Comparative resource structure of goat keeping of landless laborers and marginal farmers in rural Mathura, U.P., Indian J. of Small Ruminants 7 (1): 41-44.
4. Singh, M. R. and Sharma, K. C. (2001). Prediction equations for Semen Volume, Mass motility and fertility of Haryana bulls, Indian J. Anim. Res. 35(1): 68-70.
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³⁶⁻⁴¹ Papers presented in National Symposium on "Domestic Animal Diversity : Status, opportunities and challenges" held at NBAGR, Karnal (Feb 10-11, 2005)

42. Sharma, K. C.; Goel, Rakesh and Kumar, Sharad (2005). Production performance of Bhadawari buffaloes in their breeding tract. pp. 187
43. Sharma, K. C.; Goel, Rakesh; Singh, M. R.; Kumar, Sharad and Singh, H. N. (2005). Conservation Strategies for Bhadawari Buffaloes. pp. 185
44. Singh, M. R.; Sharma, K. C. and Goel, Rakesh (2005). Constraints Associated with Progeny Testing Program of cattle and Buffalo bulls. pp. 188
45. Singh, V. K.; Singh, H. N.; Sharma, K. C.; Goel, Rakesh; Shukla, S. N. and Singh, M. R. (2005). Conservation of Indigenous germ plasma-Sahiwal Cattle : Genetic Study on reproduction traits, pp. 195
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46. Sharma, K. C.; Goel, Rakesh; Singh, M. R.; Kumar, Sharad and Singh, H. N. (2005). Breeding Strategies for conservation of Bhadawari Buffaloes in Uttar Pradesh. Proceedings: VIII National Conference on Animal Genetics and Breeding, held at CIRG, Makhdoom, Mathura, pp 67-71 (March 8-10, 2005)
47. Chandra, Kailash; Sharma, R. C. and Kumar, Sharad (2006). Inheritance of persistency of milk production in Murrah buffaloes. pp. 172
48. Chandra, Kailash; Sharma, R. C. and Kumar, Sharad (2006). Relative significance of age, body weight and peak yield at first calving in influencing the production potential of Murrah buffaloes. pp. 202
49. Kumar, Amitosh; Sharma, K. C.; Shukla, S. N.; Goel, Rakesh; Singh, H. N.; Singh, M. R. and Kumar, Sharad (2006). Conservation of Bhadawari buffalo: haematological attribute. pp. 200
50. Kumar, Amitosh; Sharma, K. C.; Goel, Rakesh; Shukla, S. N. and Singh, H. N. (2006). Conservation of Bhadawari buffalo: gradation of Bhadawari bulls on the basis of semen characteristics. pp. 209
51. Kumar, Amitosh; Sharma, K. C.; Shukla, S. N.; Goel, Rakesh and Singh, H. N. (2006). Conservation of Bhadawari buffalo: preservation of male germ plasm. pp. 210
52. Srivastava, A. K.; Sharma, K. C.; Singh, M. R.; Goel, Rakesh and Singh, H. N. (2006). हरियाना गायों का संरक्षण: कम लागत पर अधिक दुग्ध उत्पादन. pp. 211
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⁴⁶⁻⁵³ Papers presented in National Symposium on "Conservation and Improvement of Animal Genetic Resources under Low input system: Challenges and Strategies", held at NBAGR, Karnal (Feb. 9-10, 2006)

LIST OF PRACTICAL MANUALS/BOOKS PUBLISHED

1. Practical Manual (AGB-211)
2. Practical Manual (AGB-221)
3. Manual for "Elementary Computer Education"
4. Book of "Bhadawari Breed of Buffalo"
5. Computer CD-ROM (Fundamentals of computer and operating systems DOS and Windows)

LEAFLETS

- ❖ उत्तर प्रदेश में गाय भैंसों में नस्ल सुधार व दुग्ध उत्पादन में वृद्धि के लिये अति हिमोक्त खीर का प्रयोग
- ❖ स्वरोजगार एवं दुग्ध उत्पादन को बढ़ावा देने के लिए संकर जाति की गायें पालें
- ❖ आज के समय की आवश्यकता स्वदेशी नस्ल की "हरियाना गाय का संरक्षण"
- ❖ भदावरी जाति की भैंस का गुण निर्धारण एवं संरक्षण

EXTENSION ACTIVITIES :

1. Artificial Insemination service to the animals of nearby villages of the University.
2. Training of Extension workers, Mini Dairy Trainees, Ex-military personnels to develop confidence for self-employment.
3. Provide technical knowledge to the farmers on the various aspects of Animal Husbandry topics through Radio talks, Kisaan Gosthi's, Cattle fair and T.V. programmes.

RECOGNITIONS/ ACADEMIC EXCELLENCE :

- ❖ Dr. S. N. Shukla, Professor was honoured with a prize by the Director, IVRI, Izatnagar for his contribution as Judge for various categories of Livestock Show in connection with "Kisaan Mela and Pashu Vigyan Pradarshani - 2003" held at IVRI, Izatnagar.
- ❖ National Director, ICAR has communicated to Hon'ble Vice Chancellor of this University vide his letter No. 5(4)/2005 – NATP (Project Admn.) dated 4-10-2005 that FAO Project appraisal team has rated the success of the project "Characterization and Conservation of Bhadawari Buffalo" run by this department under NATP as one of the best projects.
- ❖ Drs. H. N. Singh, K. C. Sharma, Rakesh Goel, M. R. Singh and Sharad Kumar received First and Second Prizes in poster presentation during the National Symposium on Livestock Biodiversity vis-à-vis Resource Exploitation – an Introspection" at NBAGR, Kamal (Feb. 11-12, 2005) and National Seminar on Field Progeny Testing in Dairy Animals – Methodology, Constraints and Solutions" at IVRI, Izatnagar (Feb 24-25, 2005), respectively.
- ❖ A Multinational Company Chem-biotech selected Dr. Shivendra Kumar a student of M.V.Sc. (AGB) for Research. He has joined this organization on 15-12-2005 at Calcutta.
- ❖ Dr. Sameer Dinkar Pant, M.V.Sc. (P) student of the department got admission in a Post Graduate programme in the University of Guelph (Canada). He will get an annual scholarship of 17,500 \$ CDN in the form of GRA (Graduate Research Assistantship).



ANIMAL NUTRITION

The department is engaged in undergraduate and Masters teaching programmes since 1949 and 1956 respectively. In the past, research conducted in the department centered around the attempts to formulate economic ration for livestock. It was found that barley, chuni, kasni seed (*Chicorium intybus L.*), dhaincha (*Sesbania acculeata*), urea molasses mixture, sun dried poultry droppings and cow dung can be safely incorporated in the concentrate mixture of farm animals. Studies were also conducted on replacement of barley with oat and jowar seed for formulation of economic ration.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. G. K. Mittal	MVSc	Asso. Professor & Incharge
Dr. Aditya Kumar	MVSc PhD	Professor

TEACHING PROGRAMMES :

Department is involved in teaching Animal Nutrition to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

III Semester	ANN 211 (Principles of Animal Nutrition)	2+1
III Semester	ANN 212 (Evaluation of Feed Stuff & Feed Technology)	1+1
IV Semester	ANN 221 (Applied Nutrition - I : Livestock Feeding)	2+1
IV Semester	ANN 222 (Applied Nutrition - II : Human, Pet and other Animals)	1+1

MVSc Programme

Two-year MVSc degree programme consists of one-year course programme during the MVSc (Previous). Students take up their research work and submit the thesis during the final year. Various aspects of Animal Nutrition are taught as per the details given below :

MVSc (Previous)

Paper I	(General Nutrition)
Paper II	(Applied Nutrition)
Paper III	(Quantitative Nutrition)

MVSc (Final)

Research work and submission of thesis

PhD Programme

PhD degree programme is without any course work and award of degree is only by research work and submission of thesis.

FACILITIES AVAILABLE:

Department has Kjeltex, Fibretex, Soxtech, Balance, Muffle furnace, Hot air oven etc. and other facilities to take up routine analytical work in the field of animal nutrition.

CONTRIBUTIONS AND ACHIEVEMENTS :

- ❖ Organized DST sponsored workshop on "Design and development of Indigenous Equipments for Feeding, Manufacturing, Preservation and Packaging of Animal Feeds" (16th - 17th April, 2004.)

PARTICIPATION IN CONFERENCES / SEMINARS :

1. Dr. Aditya Kumar - International Conference in Biotechnology at Bangalore (Jan. 2006)

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES :

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. S. K. Tiwari	2005	Effect of different level of shilajet feeding on the performance of broilers	Dr. Aditya Kumar

2	Dr. Alok Jain	2005	Effect of graded phosphorus with constant level of calcium on growth rate nutrients, rumen fermentation and blood biochemical profile in weaned barbari kids.	Dr. Aditya Kumar
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ANIMAL REPRODUCTION, OBSTETRICS & GYNAECOLOGY

The course of Obstetrics and Gynaecology was inducted in the syllabus of Veterinary Science in this college in the year 1960. Initially, teaching was imparted under the main subject of Veterinary Surgery and Radiology. Department of Obstetrics and Gynaecology came up as a separate department in 1967-68.

To undergraduate and postgraduate students, the department is teaching various aspects of female and male reproduction and artificial insemination, technique of handling different obstetrical cases, pregnancy diagnosis, fetotomy, ultra low freezing of semen, technique of A.I., techniques of estrus synchronization, embryo transfer technology, embryo sexing etc.

Department has the distinction of having received two Jawaharlal Nehru Awards for the outstanding research work in the field of animal reproduction on the topics "Studies on certain aspects of hormonal therapy for anoestrus in bovines and synchronization of oestrus in cattle and buffaloes with PGF₂α." and "Studies on improving certain aspects of embryo biotechnology in the buffaloes" in 1986 and 1996 respectively.

So far 58 M.V.Sc and 06 Ph.D degrees have been awarded in the subject and majority of the degree holders are placed in University, ICAR research institutes, Remount and Veterinary Corps, Banks and different state government services.

The Department is regularly serving the village masses in and around Mathura, for the reproductive health of their animals through ambulatory service, departmental clinical service or infertility camps organized by the University or by the Department of Animal Husbandry.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. Atul Saxena	MVSc PhD	Associate Professor & Incharge

TEACHING PROGRAMMES :

Department is involved in teaching animal reproduction, obstetrics and gynaecology to undergraduate (BVSc&AH) and post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

VIII Semester	VOG 421 (Gynaecology & Obstetrics)	2+0
VIII Semester	VOG 422 (Gynaecology & Obstetrics - Clinical)	0+2
IX Semester	VOG 511 (Andrology & AI)	2+0
IX Semester	VOG 512 (Andrology & AI-Practice)	0+2

MVSc Programme

Two-year MVSc degree programme consists of one-year course programme during the MVSc (Previous). During the final year, students take up their research work and submit the thesis.

MVSc (Previous)

- Paper I Gynaecology (Physio-Pathology of Reproduction in the female)
 Paper II Andrology and Seminology (Physio-Pathology of Reproduction in the male)
 Paper III Advance Obstetrics and Paediatrics in Domestic Animals

MVSc (Final)

Research work and submission of thesis

PhD Programme

PhD degree programme is without any course work. Award of degree is only by research work and submission of thesis.

RESEARCH PROGRAMME :

Presently, department is engaged in disseminating one of the assisted reproductive technology (estrus synchronization) to the farmers door steps in order to optimize fertility and reduce calving interval in cattle and buffaloes and preliminary results are quite encouraging. Simultaneously, efforts have been made to educate livestock owners about basics of estrus cycle emphasizing proper detection of estrus, best estrus signs for insemination, economical impact of loosing an estrus etc.

SEMINAR/CONFERENCE/TRAINING/SHORT COURSE ORGANIZED :

- ❖ In collaboration with the Hi-Tech Lab, Department is engaged in providing training to field veterinarians on female infertility aspects. Since April 05 training has been imparted to 203 veterinarians.

PARTICIPATION IN CONFERENCES / SEMINARS :

1. Seminar cum workshop on Embryo transfer technology at NDRI Karnal (April 6-8, 2004)
2. National Symposium On Application of Recent Biotechnological Advances In Equine Reproduction (March 02-03, 2006).

LIST OF THE POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. Sanjay Agrawal	2001	Studies on Intracellular enzyme leakage and role of additives in deep frozen buck semen.	Dr. Atul Saxena Dr. N. K. Sinha
2.	Dr. C. P. Singh	2003	Hormonal Induction of ovarian cyclicity in post-partum cattle with special reference to minerals and metabolic profile.	Dr. Atul Saxena
3.	Dr. Sharad Kumar	2003	Hormonal Induction of ovarian cyclicity in post-partum buffalo with special reference to minerals and metabolic profile.	Dr. Atul Saxena
4.	Dr. Roopali Yadav	2004	In-vitro fertilization and cleavage rate of invitro matured pubertal goat oocytes.	Dr. Atul Saxena Dr. S. D. Kharche
5.	Dr. Pankaj Kumar Yadav	2004	Studies on certain aspects of post-partum anoestrus in cattle with special preference to metabolic, hormonal and mineral profile.	Dr. Atul Saxena

6.	Dr. Nagendra Singh	2004	Studies on performance of sirohi buck and estimation of enzyme in certain biological fluid.	Dr. Atul Saxena Dr. S. K. Jindal
7.	Dr. Poonam Uniyal	2004	Studies on developmental competence of <i>in-vitro</i> fertilized goat oocytes in different culture system.	Dr. Atul Saxena Dr. S. D. Kharche
8.	Dr. S. K. Maurya	2005	Synchronization, multiple ovulation and embryo transfer in Sahiwal Cows	Dr. Atul Saxena Dr. A. K. Mathur
9.	Dr. K. P. Singh	2005	Studies on developmental competence of <i>in-vitro</i> matured goat oocytes in a medium with different supplementation.	Dr. Atul Saxena Dr. S. D. Kharche
10.	Dr. Raghuveer Singh	2005	Studies on certain seminal attributes and cryopreservation of Frieswal bull semen	Dr. Atul Saxena Dr. A. K. Mathur

PUBLICATIONS :

- 1 Atul Saxena, Sanjay Mishra, Rahul Chandra & Hari Avadh Tiwari (2001) Vaginal delivery of mummified fetus from a buffalo heifer- A case report. Indian Veterinary Journal 78 : 750-751
- 2 Atul Saxena, Rahul Chandra, Sanjay Agarwal & Balkrishan (2001) Vaginal delivery of arthrogryposis monster – A case report. Indian Veterinary Journal 78 : 748-749
- 3 Atul Saxena, Rahul Chandra, Abdul Rahim, Sanjay Mishra & G.D. Singh (2001) A obstetrical approach for relieving a downward deviated head and neck in a mare – A case report. Centure XVII (3) : 49-51
- 4 Atul Saxena, Abdul Rahim, Janardan Maurya & Rahul Chandra (2001) Surgical intervention in certain reproductive disorders of goat. Intas-Polvet 2 (1) : page 5
- 5 Rahul Chandra, Rakesh Kumar Tiwari, Abdul Rahim & Atul Saxena (2001) Urolithiasis in Albino Rat. Pashudhan. 16 (3) : 2
- 6 H.A. Tiwari, N.K. Sinha, Atul Saxena & G.D. Singh (2002) Body growth in growing Barbari kids from birth to puberty and sexual maturity. Veterinary Medical Journal. 26(2):289-291
- 7 Atul Saxena, Ram Sagar, C.P. Singh and Sharad Kumar (2003) Dystocia due to fused labiae vulva as an aquired anatomical defect. Intas - Polivet. 4(2): 180-182
- 8 Atul Saxena, C.P. Singh, Sharad Kumar & Ram Sagar (2004) Effective use of fetotomy in salvaging an animal from caesarian operation: A case report. Intas-Polivet. 5(2):158-159
- 9 C.P. Singh, Sharad Kumar, Atul Saxena and Ram Sagar (2004) Induction of oestrus in post-partum anoestrus cows with Gn-RH and short term steroid treatment. Intas Polivet. 5(2): 183-185

LECTURES DELIVERED :

- ❖ Atul Saxena (2003) An approach for fertility control program in a dairy herd at Zonal Workshop on infertility and breeding management in cattle & buffalo.
- ❖ Atul Saxena (2004) Principals of breeding soundness of bull at National Seminar on selection of breeding bulls, frozen semen production and its certification at National level.
- ❖ Atul Saxena (2006) Controlled breeding with estrus synchronization : Approach for optimizing fertility and economic artificial insemination in dairy cattle.

EXTENSION ACTIVITIES :

Submitted 15 stories to E-TV Uttar Pradesh of 12-15 minutes duration to educate livestock owners related with various reproductive ailments, their prevention and control. Educate the livestock owners through radio talks and Kishan Gosti, Infertility camps in villages. Lectures and demonstrations for the field veterinarians under state sponsored training programme in Hitech Semen Technology Lab and ASCAD training of Govt. of India.



LIVESTOCK PRODUCTION & MANAGEMENT

Department of Animal Management and Hygiene was there in Veterinary College since its inception in 1947. The subject was taught as a major subject in Ist B.V.Sc. & A.H. After adoption of VCI curriculum, undergraduate teaching in the subject of Livestock Production & Management is being carried out in collaboration with Deptt. of Agriculture and Fodder Crops, Poultry Science, Physiology etc. Some of these departments/ units are proposed to be merged to properly establish the department of LPM as per the norms of Veterinary Council of India. This department apart from teaching, provides instructional training to undergraduate students on production and management of various farm animals i.e. cattle, buffaloes, sheep, goats, horses and poultry, presently the department is maintaining 14 Kathiawari horses.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. S. K. Bansal	MVSc	Asso. Professor and Incharge
Dr. Yashwant Singh	MVSc PhD	Asst. Professor, on EOL since 09-03-2006

TEACHING PROGRAMMES :

Department is presently engaged only in teaching at graduate level. Following courses are being offered to B.V.Sc. & A.H. Students :

I Semester	LPM 111 (General Livestock Production & Management)	1+1
I Semester	LPM 112 (Fodder Prodn. & Grassland Management)	1+1
II Semester	LPM 121 (Animal Housing Sanitation)	1+1
V Semester	LPM 311 (Swine/Equine/Camel/Yak Prodn. and Management)	1+1
V Semester	LPM 312 (Wild/Zoo Animal health care/Fish Production)	1+1
V Semester	LPM 313 (Lab Animal/Rabbit/Fur Animal care and Management Pet Animal Care and Management)	1+1
VI Semester	LPM 321 (Sheep and Goat Management)	1+1
VI Semester	LPM 322 (Avian Production and Management)	1+1
VII Semester	LPM 411 (Cattle and Buffalo Production and Management)	1+1

TRAININGS ATTENDED :

Name of Participant	Date	Name of Training/Institute
Dr. Yashwant Singh	Jan. 20 - Feb. 10 2003	"Feed processing technology" at College of Veterinary Science, ANGRAU, Hyderabad
Dr. Yashwant Singh	Oct. 29 - Nov. 18 2003	Winter school on "Strategies for sustainable Livestock production in Arid Zone" at Central Arid Zone Research Institute, Jodhpur
Dr. Yashwant Singh	Nov. 30 - Dec. 20 2004	National Training Programme on "Sustainable production in farm animals through breeding and management interventions" at NDRI, Karnal

PARTICIPATION IN CONFERENCES / SEMINARS :

1. Dr. Yashwant Singh - IVth Asian Buffalo Congress - held at New Delhi (Feb. 25-28, 2003)
2. Dr. S. K. Bansal and Dr. Yashwant Singh - National Seminar on "Selection of Breeding Bulls, Frozen Semen Production and its Certification at National Level" (Mar. 11-12, 2004)

3. Dr. S. K. Bansal - National Symposium on "Wild Life Health & Husbandry constraints" and 4th Annual convention of Association of Indian Zoo & Wildlife Veterinarians held at Assam Agricultural University, Khanapara, Guwahati (Oct. 25-26, 2005)
4. Dr. Yashwant Singh - National Symposium of "Technological Interventions for Livestock Improvement and Production" held at National Academy of Agricultural Sciences, New Delhi (Feb. 17-19, 2006)
5. Dr. Yashwant Singh - National Workshop cum Seminar on "Commercial Goat and Sheep Farming and Marketing, Farmer - Industry - Research Interface" held at CIRG, Makhdoom, Farah, Mathura (Mar. 4-5, 2006)

PUBLICATIONS :

1. Singh Y.; Madan A. K.; Kumar, J. and Agarwal M.P. (2001) Studies on the haematological and biochemical profile of Kathiawari yearlings. *Centaur* 18 (1) : 17-20.
2. Kumar, J.; Singh, Y. and Madan, A.K. (2001) Foaling induced alterations in haematological and biochemical profile in Kathiawari mares. *Cheiron* 30 (5&6) : 161-163.
3. Kumar, J.; Singh, Y.; Madan, A.K.; Chandra, R. and Rahim, A. (2001) Changes in blood biochemical profile after short term exercise in Kathiawari horses. *Indian J. Vet. Res.* 10 (2) : 50-54.
4. Kumar, J.; Madan, A.K.; Singh, Y.; Rahim, A.; and Chandra, R. (2001) Studies on blood biochemical profile of Kathiawari horses. *Indian Vet. Med. J.* 25 (4) : 337-339.
5. Singh, Y.; Kumar, J.; Madan, A.K. and Agarwal, M.P. (2002) Exercise-induced physiological and haematological changes in Kathiawari horses. *Indian Vet. Med. J.* 26 (1) : 51-52.
6. Madan A.K.; Kumar, J.; Singh Y. and Agarwal, M.P. (2002) Biochemical alteration in Kathiawari foals during early stage of growth. *Centaur* 18 (4) : 66-69.
7. Madan A.K.; Kumar, J.; Singh Y. and Agarwal, M.P. (2002) Sequential alterations in some of the haemato-biochemical indices during post foaling period in Kathiawari mares. *Indian Journal of Animal Science* 72 : 640-642.
8. Singh Y.; Madan A. K.; Kumar, J. and Goel, R. (2003) Physiological and haematological values of Kathiawari foals during postnatal development. *Indian Journal of Animal Research* 37 : 14-18.
9. Singh Y.; Kashyap, S.S.; Kumar, J. and Garg, S.K. (2003) Clinico-haematological observations in quails following short-term exposure to saline drinking water. *Indian Journal of Animal Science* 73 : 1006-1008.
10. Kashyap, S.S.; Kumar, J.; Singh Y. and Garg, S.K. (2003) Effect of saline drinking water on laying performance of Japanese quails (*Coturnix coturnix japonica*) following short-term exposure to saline drinking water. *Indian Journal of Poultry Science* 38 : 170-172.
11. Kumar, J.; Singh, Y.; Madan, A.K.; and Goel, R. (2003) Age associate biochemical and enzymatic alterations in Kathiawari horses. *Centaur* 20 : 6-9.
12. Kumar, J.; Garg, S.K.; Kashyap, S.S.; Singh Y. and Mishra, S.K. (2005) Biochemical and patho-morphological alteration in quails (*Coturnix coturnix japonica*) after short-term exposure to saline drinking water. *Toxicology International* 12 : 27-31.

EXTENSION ACTIVITIES :

Department is actively involved in all extension activities of the University including organization of Kissan melas, cattle show and judging and delivering scientific lectures for the benefit of farmers, ex-servicemen from Defence services in mini dairy scheme, and field veterinarians and extension workers.

OTHER ACTIVITIES :

- ❖ Dr. Yashwant Singh, Asst. Professor, performed the additional duties of Hostel Warden (Nehru-Hostel) w.e.f. May. 1, 2004 to Mar. 8, 2006.



LIVESTOCK PRODUCTS TECHNOLOGY / DAIRY SCIENCE

The department is engaged in teaching of undergraduate students, training and extension activities. Ever since its inception, the department offers a course in dairying as minor at post-graduate level

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. M. P. Gupta	MSc (Dairy Science) PhD	Professor and Head
Mr. Y. N. Yadav	MSc (A.H. & Dairying)	Asst. Professor

TEACHING PROGRAMMES :

Department is involved in teaching of courses related to Dairy Science to BVSc&AH students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

V Semester	LPT 311 (Milk and Milk Products Technology)	1+1
VI Semester	LPT 321 (Abbotair Practices and Animal By-products Technology)	1+1
VII Semester	LPT 411 (Meat and Meat Products Technology)	1+1

Note : LPT 321 and LPT 411 courses are being taught by the teachers of Veterinary Public Health and Poultry Science departments respectively.

MVSc Programme

Dairying - (Minor Course)

FACILITIES AVAILABLE :

- ❖ Laboratory equipment and facilities for milk and milk products analysis.
- ❖ Laboratory equipments and facilities for detection of common adulterants in milk, viz, water skimmed milk, sugar, starch, salt, urea, neutraliser and preservatives.
- ❖ Common adulterants in ghee.
- ❖ Others : spectrophotometer, pH meter, butyrefractometer, milkotester.

PARTICIPATION IN CONFERENCES / SEMINARS :

S.No.	Name of Participant	Seminar/Conference/Symposium
1.	Mr. Y. N. Yadav	Seminar on Infertility in cattle problems - its solution in field conditions organised by U.P. Pandit Deen Dayal Upadhyaya Vety. University, Mathura (Jan. 5, 2002)
2.	Dr. M. P.Gupta	National workshop on "Role of Biotechnology" in women upliftment in the new millenium" at Agra, sponsored by Dept. of Biotechnology, Ministry of Food Science and Technology, Govt. of India. (Jan. 24-25, 2002)
3.	Dr. M. P.Gupta	Seminar on "Nutritional and Health Benefits of Soy and oppertunities in India" at Agra organised by American Soybean Association & Small Scale Service Institute, Agra. (Sept. 14, 2003)
4.	Dr. M. P.Gupta Mr. Y. N. Yadav	National seminar on "Selection of Breeding bulls, frozen semen production and its certification at National Level, organised by U.P. Live Stock Development Board at U.P. Pt. Deen Dayal Upadhyaya Veterinary University, Mathura (Mar. 11-12, 2004)

5.	Dr. M. P. Gupta	National seminar on "Operational Methodologies and Package of practices in organic farming" organised by the association for promotion of organic farming (APOF), at Kannad Sabhangana, Hebbal, Bangalore. (Oct. 7-9, 2004.)
6.	Dr. M. P. Gupta	National seminar on "Production of wholesome milk and dairy products" organised by e-PAHEL at Allahabad (Oct. 30-31, 2004)
7.	Dr. M. P. Gupta	Seminar on "Texture Analysis organised by Scientific and Digital System (SDS) at PHD chamber of commerce & Industry, New Delhi on (Jan. 19, 2005)
8.	Dr. M. P. Gupta	XXXIV Dairy Industry Conference (Theme : Road Map to Meet Emerging challenges organised by the Indian Dairy Association at NIMHANS, Bangalore (Nov. 23-25, 2005)

TRAININGS ATTENDED :

1. Mr. Y. N. Yadav attended course on "Transfer of Appropriate rural technology for sustainable livelihood in livestock sector" organised by National Institute of Rural Development, Rajendra-Nagar, Hyderabad (Aug. 30 - Sept. 4, 2004)
2. Mr. Y. N. Yadav attended summer school on "Strategies for production, processing and marketing of milk and milk products at B.H.U., Varanasi (June 22-July 12 2005)

POST-GRADUATE PROGRAMMES :

There is no post graduate programme in the Department. However, Dr. M. P. Gupta, Professor and Head is the approved Guide of C.C.S. University - Meerut, and V.B.S. Purvanchal University - Jaunpur in the discipline of Dairy Science. Under the direct supervision of Dr. Gupta, four students have been awarded their Ph.D. Degree by C.C.S. University - Meerut/V.B.S. Purvanchal University Jaunpur.

PUBLICATIONS :

1. Singh, Hari and Gupta, M.P. (2001). Chemical and microbiological quality of rabri and storage related changes. J. Rural and Agric Res. 1 : 66-33
2. Gangopadhyay, S.K., Chakrabarty, S.R. and Gupta, M.P. (2001) Morphology of soy - rasogolla as revealed by electron microscopic study. Beverage & Food World 28 (II) 37-38
3. Singh, K.P. and Gupta, M.P. (2001) Physio-chemical quality of rabri. J. Rural and Agric Res. 1 (2) : 50-54
4. Gangopadhyay, S.K., Chakrabarty, S.R., Sanyal M.K. and Gupta, M.P. (2003) Rasogolla from blends of soy-milk, cow milk and buffalo milk. Beverage & Food World 30 (II) 43-44

PAPERS PRESENTED IN CONFERENCES :

1. Gupta, M.P. (2002) Role of dairying in upliftment of rural women in the new millenium at "National Work shop on Role of Biotechnology in women upliftment in the new millenium, held at Hotel Holiday Inn., Agra (Jan. 24-25, 2002)
2. Gupta, M.P. (2004) Newer Concepts in organic milk production at National Seminar on "Operational methodologies and package of practices in organic farming" held at Kannad Sabhangara, Hebbal, Bangalore, (Oct. 7-9, 2004)
3. Gupta, M.P. (2004) Recent trends in detection of adulteration in milk and dairy products at National Seminar on "Production of wholesome milk and dairy products" held at Allahabad (Oct. 30-31, 2004)



POULTRY SCIENCE

The department was established in 1976 with the mandate of producing specialist technical man power in the field of Poultry Science. Currently, the department is engaged in imparting teaching of related courses at undergraduate level and postgraduate students. The department is also running short term Poultry Husbandry course for retired Army Personnels, unemployed youth and landless labourers.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. P. K. Shukla	MVSc PhD	Asso. Professor & Incharge

TEACHING PROGRAMMES :

Department is involved in teaching different aspects of Poultry Science to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

VI Semester	LPT 322 (Avian Production & Management)	2+1
VIII Semester	LPT 411 (Meat and Meat Products Technology)	1+1

MVSc Programme

Two-year MVSc degree programme consists of one-year course programme during the MVSc (Previous) and during the final year, students take up their research work and submit the thesis. Various aspects of Poultry Science are taught as per the details given below :

MVSc (Previous)

Paper I	(Poultry Physiology, Nutrition & Management)
Paper II	(Poultry Breeding & Genetics)
Paper III	(Poultry Production Technology)

MVSc (Final)

Research work and Submission of thesis

PhD Programme

PhD degree programme is without any course work. Award of degree is only by research work and submission of thesis.

RESEARCH PROGRAMME :

- ❖ Estimated the genetic diversity in different poultry species using different DNA based markers.
- ❖ Studied the genetic polymorphism between wild and domesticated chicken using DNA markers.
- ❖ Avian genetics - DNA finger printing of Guinea Fowl and identification of proteins related to various production traits and disease resistance.
- ❖ Avian nutrition - Nutritional evaluation of various conventional and non conventional feed ingredients in commercial broilers and layer quails.
- ❖ Avian post-harvest technology - Development, processing and storage studies of some of the convenient value added poultry products.
- ❖ Avian physiology - Summer stress and its physiological effects on avian production.

CONTRIBUTIONS AND ACHIEVEMENTS :

- ❖ Organized National Seminar on "Selection of breeding bulls, frozen semen production and its certification at national level." (11&12th, March 2004)
- ❖ Organized three "Seminar cum workshops" in collaboration with the Poultry Industry on "Poultry nutrition, management and disease control".
- ❖ Organizing "Short term training" of 10 days duration twice a year to train the landless labors, unemployed youth and the retiring Military personnel.
- ❖ Organised a Technical Seminar for Veterinary Graduates on "Current status of Indian Poultry Industry with employment oppourtunity for Veterinary Graduates.
- ❖ Organised a Dairy Nutrition Seminar for the farmers on "Safe and Balanced Feed" in collaboration with S.P.Solvent Pvt. Ltd., Rudrapur and American Soybean Association, New Delhi (23rd Jan., 2005)

PARTICIPATION IN CONFERENCES / SEMINARS :

1. National Seminar on "Conservation of red jungle fowl" at CARI, Izatnagar (14-15th, March, 2003).
2. 21st Annual Poultry Conference and Symposium of Indian Poultry Science Association at CARI, Izatnagar (27-28 March, 2003).
3. Poultry Nutrition Seminar organized by American Soybean Association at Hotel Bristol, Gurgoan (18th July, 2004).
4. 45th Annual meeting and National Symposium of CLAFMA of INDIA on "Safe feed to safe food" at Hotel Mugal Sheraton, Agra (12-13 Sept., 2003).
5. Interaction seminar on "Impact of Globalization and quality concept." Organized by Indian Society for sheep and Goat production and utilization (ISSGPU) at Central Institute for Research on Goats, Makhdoom, Farah (17th Sept., 2003).
6. Seminar on Goat Genome organized by Central Institute for Research on Goats, Makhdoom, Farah (April 5-6th. 2003).
7. 23rd Annual Poultry Conference and Symposium of Indian Poultry Science Association at PDP, Rajendranagar, Hyderabad (2-4 Feb, 2005).
8. National Seminar on Revision of Minimum Standards of Veterinary Education (B.V.Sc. & A.H.) Regulations at A N G R A University & Shri Venketaswara Veterinary University, Hyderabad (A P) (29 Aug. - 7 Sept., 2005.)

TRAININGS ATTENDED :

1. Environment Management & carcass utilization at Kerala Agriculture University College of Veterinary Science & A. H, Mannuthy (Dec. 3-15, 2001)
2. Agricultural Research prioritization Techniques at National Academy of Agricultural Research Management, Hyderabad (Aug. 20-21, 2003)
3. Management Development Programme for Directors of SAU at National Academy of Agricultural Research Management, Hyderabad (Sep. 10-11, 2004)
4. Molecular and immunological techniques in poultry production and protection at Division of Avian Breeding and Genetics Central Avian Research Institute, Izatnagar (Sep. 20-Oct. 6, 2004)
5. Recent Advances in Poultry and Egg Processing and quality assessment of poultry products at Division of Post Harvest Technology, Central Avian Research Institute, Izatnagar (Aug. 29-Sep. 7, 2005)

LIST OF THE POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide
1.	Dr. Rishesh Kumar Misra	2002	Performance of commercial broilers fed low levels of dietary pesticides and performance enhancer.	Dr. P. K. Shukla
2.	Dr. Anand Prakash Singh	2002	Effect of dietary supplementation of <i>Lactobacillus sporogenes</i> and Zigbir on the performance of broilers.	Dr. P. K. Shukla
3.	Dr. Raj Kumar Srivastava	2002	Influence of dietary probiotic and performance enhancer on the performance of commercial broilers.	Dr. P. K. Shukla
4.	Dr. Amit Tomar	2004	Genetic polymorphism between wild domesticated chicken using DNA markers.	Dr. P. K. Shukla
5.	Dr. Sanjeev Kumar	2004	Effect of different pesticides and and biocholine on the performance of commercial broilers.	Dr. P. K. Shukla
6.	Dr. Vinod Kumar	2004	Biocholine as a replacer of choline chloride in commercial broilers.	Dr. P. K. Shukla
7.	Dr. Vijay Kumar Jaiswal	2005	Effect of dietary probiotics on the performance of commercial broilers.	Dr. P. K. Shukla
8.	Dr. Ashish Ashok Jaiswal	2005	Effect of herbal preparations on performance of broilers.	Dr. P. K. Shukla

PUBLICATIONS :

- (1) Mittal, Mitesh; Shukla, P.K. and Mittal, G.K. (2001) Endangered and threatened goats of India and their conservation: No time to lose. *Livestock International*. 5 (6): 18-22.
- (2) Kumar Arun and Shukla, P.K. (2002) Selection and handling of hatching eggs. *Poultry Planner* 3:7:12-15.
- (3) Kumar Arun and Shukla, P.K. (2002) Manav Aahar mein kukkut mans ke upyogita. *Poultry Planner* 3:9:19.
- (4) Shukla, P.K., Kumar Arun and Singh, R.P. (2002) Concept of digestive enzymes in poultry feeding. *Poultry Planner* 3:12:16-17.

PAPERS PRESENTED IN CONFERENCES :

- (1) Rana, R.K. and Shukla, P.K. (2003) Storage stability of pickled guinea fowl meat. pp 46
- (2) Rana, R.K. and Shukla, P.K. (2003) Effect of packaging materials on the storage stability of pickled guinea fowl meat. pp 47
- (3) Shukla, P.K. (2003) Physico chemical and microbiological properties of spent hen meat. pp 130
- (4) Chandra Subhash and Shukla, P.K. (2003) Quality and shelf life of spent hen meat cubes. pp 130
- (5) Chandra Subhash and Shukla, P.K. (2003) Influence of tetra sodium pyrophosphate on storage stability of spent hen meat cubes. pp 130
- (6) Chandra Subhash and Shukla, P.K. (2003) Effect of tocopherol on the shelf life of spent hen meat cubes. pp 130

¹⁶ Papers presented during 21st IPSACON-2003, held at CARI, Izzat Nagar (March 27-28, 2003)

- (7) Singh, A.P. and Shukla, P.K. (2005) Effect of dietary supplementation of Lactobacillus sporogens and Zigbir in broilers: I performance. pp 67
- (8) Singh, A.P. and Shukla, P.K. (2005) Effect of dietary supplementation of Lactobacillus sporogens and Zigbir in broilers: II Nutrient utilization and haematological profile. pp 68
- (9) Misra, R.K., Jitender Kumar and Shukla, P.K. (2005) Haemato-biochemical profiles of broilers following short-term feeding of Fenvelerate. pp 143
- (10) Misra, R.K., Jitender Kumar and Shukla, P.K. (2005) Effect of methyl parathion on haematological and serum biochemical attributes in broilers. pp 144
- (11) Misra, R.K., Mishra, A.K. and Shukla, P.K. (2005) Toxicological studies on methyl parathion with special reference to clinical signs, gross histopathological attributes in broilers. pp 144
- (12) Misra, R.K., Mishra, A.K. and Shukla, P.K. (2005) Effect of dietary fenvelerate on clinical signs, gross, histopathological lesions in broilers. pp 144

⁷⁻¹² Papers presented during 21st IPSACON-2005, held at Project Directorate on Poultry, Rajendranagar, Hyderabad (February 2-4, 2005).

EXTENSION ACTIVITIES :

Department is currently involved in the following extension activities :

- ❖ Camps, Kisan Gosthies, Kisan Melas organized by State Govt. Agencies, University, Local Bodies, NGOs etc.
- ❖ Short Courses in Animal Husbandry Practices by Extension Department of the College for retired army personnel.
- ❖ Biannual training of poultry husbandry to the farmers, landless laborers and unemployed youth .
- ❖ Radio-talks (ten) on poultry production and management practices in local dialect.
- ❖ Popular articles in Hindi for the benefit of poultry farmers.
- ❖ More than 50 Programmes on ETV Uttar Pradesh "ANNADATA" on various topics of Poultry Production for the farmers.
- ❖ Radio talks on AIR Mathura on popular topics for their Socio-economic upliftment through poultry production.



TEACHING VETERINARY CLINICAL SERVICE COMPLEX (KOTHARI HOSPITAL)

Kothari Hospital, the Veterinary Hospital in the College was established in 1949. The construction and furnishing of this hospital complex was done with the generous donation from Shree Sujan Chandra Narendra Das Kothari, a resident of Bikaner. The hospital was named Kothari Pashu Chikitsalaya after the name of Sh. Kothari and care of sick cows and other animals was the prime objective of establishment of this Hospital.

After adoption of VCI curriculum by the College, Kothari Pashu Chikitsalaya was renamed as the Department of Clinics. The hospital is working as referral centre from various parts of Uttar Pradesh and near by districts of Rajasthan, Haryana and Madhya Pradesh.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. Ram Sagar	MVSc	Asst. Professor (SS) & Incharge

TEACHING PROGRAMMES :

Department is involved in teaching *Veterinary Clinical Courses* to undergraduate students in collaboration with other clinical and para-clinical departments.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

VIII Semester	VAC 421 (Veterinary Ambulatory Clinics - I)	0+2
*VIII Semester	VLD 421 (Veterinary Laboratory Diagnosis - I)	0+2
IX Semester	VAC 511 (Veterinary Ambulatory Clinics - II)	0+2
*IX Semester	VLD 511 (Veterinary Laboratory Diagnosis - II)	0+2

* Courses are conducted in the Clinical complex by the Deptt. of Pathology, Parasitology, Biochemistry and Microbiology.

Ambulatory clinical services for 8th and 9th semester students is being provided twice a week. The students are taken to designated centres and are trained in diagnosis and treatment of various clinical conditions at village level.

FACILITIES AVAILABLE :

- (1) Routine examination of blood, urine and excreta.
- (2) 500 mA X-ray, ECG and Ultrasonography.

TRAININGS ATTENDED :

S.No.	Name of Participant	Date	Name of Training/Institute
1.	Dr. Ram Sagar	Nov. 19 - Dec. 18 2001	Advances in diagnosis and treatment of ruminants diseases at Madras Veterinary College, Chennai
2.	Dr. Ram Sagar	Sep. 1-10, 2003	Cryopreservation of semen, artificial insemination and pregnancy diagnosis in equines at NRCE, Bikaner
3.	Dr. Ram Sagar	Sep. 8-28, 2005	Advances in diagnosis and treatment of pet animal diseases at Madras Veterinary College, Chennai

PUBLICATIONS :

1. Atul Saxena, Ram Sagar, C.P. Singh and Sharad Kumar (2003). Dystocia due to fused labiae vulva as an aquired anatomical defect. *Intas - Polivet*. 4(2): 180-182.
2. Atul Saxena, C.P.Singh, Sharad Kumar & Ram Sagar (2004). Effective use of fetotomy in salvaging an animal from caesarian operation: A case report. *Intas-Polivet*. 5(2):158-159
3. C.P.Singh, Sharad Kumar, Atul Saxena and Ram Sagar (2004). Induction of oestrus in post-partum anoestrus cows with Gn-RH and short term steroid treatment, *Intas Polivet*. 5(2): 183-185

EXTENSION ACTIVITIES :

Students are taken to villages in pashu palan goshti and treatment camps under the supervision of teachers to creat awareness and to motivate the livestock farming community for adoption of good animal husbandry practices. The information on vaccination schedule and deworming is also provided.

Every year, on last saturday of April, World Veterinary Day is celebrated in the hospital.

On this day, a treatment and vaccination camp is organized and a bilateral interactive session with livestock farmers is arranged. In the year 2004, a Dog Show was organized with the participation of expert dogs from dog-training centre of BSF, Tikanpur, Gwalior.

The department also imparts training in dairy and poultry farming to the trainees sent by government and non government organizations.

Number of clinical cases and annual income from year 2001 onward :

Year	No. of Animals Treated	Annual Income (Rs.)
2001	4219	19431.25
2002	3342	20423.00
2003	3111	20005.00
2004	3045	21417.00
2005	2828	18814.00

Year wise break up of veterinary clinical cases for specialized treatment :

Year	Total No. of Sick Animals	Hospital	Gynaecology	Surgery	Medicine
2001	4219	2009	1203	790	217
2002	3342	1520	901	699	202
2003	3111	1498	852	603	158
2004	3045	1502	905	600	35
2005	2828	1519	802	502	7



VETERINARY ANATOMY AND HISTOLOGY

The Department of Anatomy at this institution imparts instructions in the subject of Anatomy including Histology and Embryology to under-graduate as well as post-graduate students for the award of B.V.Sc. & A.H., M.V.Sc. and Ph.D. degrees, respectively. So far 7 Ph.D. and 16 M.V.Sc candidates have obtained their degrees from this department. Histological and histochemical studies on various important systems of poultry (except the digestive system) have been so far completed. In addition, the department has conducted considerable research on various systems of buffalo. Under this programme, work has already been done on histology and histochemistry of skin, endocrine glands, salivary glands, blood, male and female genital organs of different age groups and in varying stages of sexual activity, mammary gland and thymus. Extensive work has been carried out in the department on the placenta of buffalo. In goats, research was conducted on the placentome and effect of vasoligation and castration on male genital organs of buck. In camel, gross histological and histochemical studies were conducted on poll glands and testis and post parturient placenta. Practical manuals in Gross Anatomy and Osteology which were published in 1968, have been updated recently. New practical manuals for Histology, Embryology and Applied Anatomy were published in the year 2004 as per the pattern of VCI. The department also has the distinction of organizing the I.C.A.R. sponsored 1st Summer Institute in Anatomy during 1972.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. Raja Ram	MVSc PhD	Professor and Head
Dr. R. S. Katiyar	MVSc PhD	Professor
Dr. M. M. Farooqui	MVSc PhD	Asso. Professor
Dr. Ajay Prakash	MVSc PhD	Asso. Professor

TEACHING PROGRAMMES :

Department is involved in teaching Veterinary Anatomy to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

I Semester	VAN 111 (Gross Anatomy I)	2+2
II Semester	VAN 121 (Gross Anatomy II)	2+1
II Semester	VAN 122 (Gross Anatomy III)	1+1
III Semester	VAN 211 (Histology & Embryology)	2+2
IV Semester	VAN 221 (Applied Anatomy)	0+2

MVSc Programme

The Post-Graduate Programme (MVSc) is continuing in traditional/annual system. Two-year MVSc degree programme consists of one-year course programme during the MVSc (Previous). During the final year, students take up their research work and submit the thesis. Various aspects of Anatomy & Histology are taught as per the details given below :

MVSc (Previous)

- Paper I (Comparative Anatomy)
- Paper II (Comparative Histology)
- Paper III (Comparative Embryology)

MVSc (Final)

Research work and submission of thesis

PhD Programme

PhD degree programme is without any course work. Award of degree is only by research work and submission of thesis.

RESEARCH PROGRAMME :

Extensive work is being carried out on Gross, histological and histochemical studies on the urinary system of goat. Correlative Anatomy of the testis and accessory sex glands of the Gaddi goat and gross, histological and histochemical observation on the digestive system of adult white leghorn fowl.

FACILITIES AVAILABLE :

The department has a well equipped museum, photo-laboratory for gross and micro photography, including processing and printing.

CONTRIBUTIONS AND ACHIEVEMENTS :

- ❖ Best research paper was awarded to Drs. S. K. Gupta, Ajay Prakash and Raja Ram during XVIII Annual Convention of IAVA and National Symposium held at College of Veterinary Science and Animal Husbandry ANAND, Gujarat (Dec. 26-28, 2003)
- ❖ Best research paper was awarded to Drs. Gupta, S. K.; Ajay Prakash and Raja Ram during XIX Annual Convention of IAVA and National Symposium held at College of Veterinary Science and Animal Husbandry KOLKATA, W. B. (Nov. 16-18, 2004). Paper presented by Dr. Ajay Prakash.

- ❖ Dr. Ajay Prakash is a Member of the Editorial Board of Indian Journal of Veterinary Anatomy since 2003.
- ❖ Dr. M. M. Farooqui has been honoured as Best Teacher during the year 2005.
- ❖ Best research Paper award to Drs. Archana, R. S. Katiyar and D. N. Sharma during National symposium on Recent Advance in Veterinary Anatomy and their applications to improve livestock health, production and reproduction and XX Annual Conference of IAVA held at Veterinary College, J.N.K.V.V., Jabalpur. (27-29 Jan. 2006). Paper presented by Dr. Archana.

PARTICIPATION IN CONFERENCES / SEMINARS :

S.No.	Name of Participant	Seminar/Conference/Symposium
1.	Dr. M M Farooqui	Seminar on "Infertility in cattle, problems and there solution in field conditions" organized by U P Veterinary Council at UP Pt. DD Upadhyaya Pashu chikitsa Vigyan Vishwavidhyalaya Mathura (Jan.5, 2002)
2.	Dr. Ajay Prakash	XVIII Annual Convention of IAVA and National Symposium held at College of Veterinary Science and Animal Husbandry ANAND, Gujarat (Dec. 26-28, 2003)
3.	Dr. M M Farooqui	Workshop on " Infertility and breeding management in cattle and buffalo" at UP Pt. D.D. Upadhyaya Pashu Chikitsa Vigyan Vishwavidhyalaya Mathura (Nov. 6, 2003)
4.	Dr. Ajay Prakash	XVIII Annual Convention of IAVA and National Symposium held at College of Veterinary Science and Animal Husbandry Kolkata (W.B.) (Nov. 16-18, 2003)
5.	Dr. Raja Ram Dr. R. S. Katiyar Dr. M M Farooqui Dr. Ajay Prakash	Workshop on " 16 th annual scientific meet of AICRP on FMD" at UP Pt. D.D. Upadhyaya Pashu Chikitsa Vigyan Vishwavidhyalaya Mathura (Jan. 9-10, 2004)
6.	Dr. Raja Ram Dr. R. S. Katiyar Dr. M M Farooqui Dr. Ajay Prakash	Workshop on " Selection of breeding bulls, frozen semen production and its certification at National level" at UP Pt. DD Upadhyaya Pashu Chikitsa Vigyan Vishwavidhyalaya Mathura (March 11-12, 2004)
7.	Dr. Raja Ram Dr. R. S. Katiyar Dr. M M Farooqui Dr. Ajay Prakash	Workshop on "Feeding and designing of indogenous equipments" at UP Pt. DD Upadhyaya Pashu Chikitsa Vigyan Vishwavidhyalaya Mathura (Apr. 16-17, 2004)
8.	Dr. Ajay Prakash	National Symposia organized by IAVA at College of Veterinary Science and Animal Husbandry Bhubaneshwar, Orissa (Apr. 25, 2005)
9.	Dr. R. S. Katiyar	National Symposia on "Subject wise discussion for revision of under graduate veterinary curriculum" organized by VCI at CCS HAU Hisar (Apr. 25-26, 2005)
10.	Dr. M M Farooqui	National Symposia on "Subject wise discussion for revision of under graduate veterinary curriculum" organized by VCI at Veterinary University, Chennai (June 16-17, 2005)

TRAININGS ATTENDED :

1. Dr. Ajay Prakash and Dr. M.M. Farooqui - Recent advances in histomorphological and histochemical techniques at P.A.U. Ludhiana (Jan. 29 - Feb. 18, 2002)

2. Dr. Ajay Prakash - Advances in structure and function of productive and reproductive behaviour of animals at high altitude at H.P.K.V., Palampur (Sep. 02 - 22, 2002)
3. Dr. M M Farooqui - Current concepts in farm and pet animal medicine at Madras Veterinary College, Chennai. (Feb. 22 - Mar. 14, 2006)

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES

Ph.D.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. M M Farooqui	2004	Morphological, histological and histochemical studies on male genital system of goat (<i>Capra hircus</i>) in prenatal period	Dr. Chandra Pal

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. A. R. Choudhary	2001	Morphological, histological and histochemical studies on the metanephros, ureter and urinary bladder of goat (<i>Capra hircus</i>) in prenatal period	Dr. Chandra Pal
2.	Dr. S. K. Gupta	2002	Gross, histological and histochemical observations in the ovary of goat (<i>Capra hircus</i>)	Dr. Raja Ram Dr. Ajay Prakash

PUBLICATIONS :

- (1) Ajay Prakash and G. Chandra, (2001). Histological observations on the pylorus of goat (*Capra hircus*). Indian Journal of Veterinary Anatomy 13 (2) : 169-171.
- (2) Choudhary AR, Farooqui M.M. and Chandra Pal (2001) Morphological, histological and certain histochemical studies on the ureter of goat (*Capra hircus*) in the prenatal period. Indian Journal of Veterinary Anatomy 12 (2) : 32-38
- (3) Choudhary AR, Farooqui M.M. and Chandra Pal (2002) Histological and certain histochemical studies on the metanephros of goat (*Capra hircus*) in the prenatal period - Secretary part. Indian J. Veterinary Anatomy. 14 (1&2) : 8-15
- (4) Choudhary AR, Farooqui M.M. and Chandra Pal (2003) Micrometric observations on various segments of the metanephros of goat (*Capra hircus*) in the prenatal period. Indian Journal of Veterinary Anatomy. 15 (1&2) : 15-18
- (5) Gupta S.K., Ajay Prakash and Raja Ram (2003) Histomorphology of the atretic follicles in the ovary of goat (*Capra hircus*) Indian Journal of Veterinary Anatomy. 15 (1&2) : 25-29
- (6) T. Yadav, R.P. Pandey, D.K. Nandy, Ashok Kumar, Ajay Prakash and B. Singh (2004). Standardization of safe degree of intraperitoneal pressure for laproscopy in goat and sheep. Indian J. Animal Sciences 74 (10) 1044-1046
- (7) Gupta, S. K.; Ajay Prakash and Raja Ram (2005) Histological and histochemical studies on the degenerating corpus luteum in goat. Indian Veterinary Journal 82 : 1196-1197
- (8) Gupta, S. K.; Ajay Prakash and Raja Ram (2006) Light microscopic observations on the corpus luteum in the ovary goat (*Capra hircus*) Indian J. Animal Sciences 75 (12) : 1363-1514

PAPERS PRESENTED IN CONFERENCES :

- (1) Farooqui M.M. and Chandra pal (2001) "Morphometric Studies of goat foeti". Souvenir and Abstracts XVI Annual convention of IAVA and National Symposium held at Pantnagar. (Nov. 6-10, 2001)

- (2) Pandey R.P., Singh B., Dwivedi S.D.; Butola, V. Yadav, T. and Prakash, A (2001) Clinical observations on rhinotomy in a dog. ISVS Souvenir, pp.37 of the Silver Jubilee Congress and National Symposium of ISVS held at C.C.S.H.A.U., Hisar (Dec. 5-7, 2001)
- (3) Katiyar R. S., Chandra G. and Prakash Ajay (2001) Morphology of the mammary gland of buffalo (*Bubalus bubalis*). Abstract in pre-conference Bulletin pp. 36
- (4) Prakash Ajay, Chandra G. and Raja Ram (2001) Histology of the jejunal epithelial cells in kids and adult goats (*Capra hircus*). Abstract in pre-conference Bulletin pp. 48-49
- (5) Raja Ram, Chandra G. and Prakash Ajay (2001) Distribution of giant cells in the placentome of buffalo (*Bubalus bubalis*). Abstract in pre-conference Bulletin pp. 48
- ²⁵Papers presented during the XVI Annual Convention of IAVA and National Symposium held at Veterinary College, Pantnagar, (Nov. 8-10, 2001)
- (6) Chandra Pal and Farooqui M.M. (2002) Descent of the testis in goat foeti (*Capra hircus*) Souvenir and Abstracts. pp. 56
- (7) Farooqui M.M. and Chandra Pal (2002) Prenatal development of the testis in goat (*Capra hircus*) Souvenir and Abstracts. pp. 57
- (8) Gupta S.K.; Prakash Ajay and Raja Ram (2002). Gross and histological observations on the ovary of kids (*Capra hircus*). Preconference Bulletin pp. 26
- (9) Gupta S. K.; Prakash Ajay and Raja Ram (2002). Histochemical observations on the ovary of kids (*Capra hircus*). Abstract in Pre-conference Bulletin pp. 53
- ²⁶⁻²⁹Papers presented during the XVII Annual Convention of IAVA and National Symposium held at Bombay Veterinary College, Mumbai. (Nov. 14-16, 2002)
- (10) Prakash Ajay, Chandra G. and Raja Ram (2003). Histological observations on the Hassall's corpuscles in prenatal thymus of buffalo (*Bubalus bubalis*). 4th Asian Buffalo Congress, New Delhi (Feb. 25-28, 2003) Preconference Bulletin volume II pp. 9.
- (11) Gupta S. K.; Prakash Ajay and Raja Ram (2003). Histological and certain histochemical observations on the atretic follicles in the ovary of goat (*Capra hircus*). X Annual Conference of IAVA held at College of Veterinary and Animal Sciences, C. S. K. H.P.K.V. Palampur. (Dec. 20-23, 2003)
- (12) Gupta S. K.; Prakash Ajay and Raja Ram (2003). Light microscopic observations on the corpus luteum in the ovary of goat (*Capra hircus*). Pre-conference Bulletin pp. 66
- (13) Gupta S. K.; Prakash Ajay and Raja Ram (2003). Certain histochemical studies on the corpus luteum of goat ovary. Abstract in Pre-conference Bulletin pp. 66
- (14) Katiyar R.S. and G.Chandra (2003) Micrometry of secretory tissue of mammary gland of buffalo (*Bubalus bubalis*) souvenir and abstracts.
- (15) Farooqui M.M.; and Chandra Pal (2003) Morphogenesis of the seminal vesicles of goat (*Capra hircus*) souvenir and abstracts.
- ³²⁻³⁵Papers presented during the XVIII Annual Convention of IAVA and National Symposium held at College of Veterinary Science and Animal Husbandry, Anand. (Dec. 26-28, 2003)
- (16) Gupta S. K.; Ajay Prakash and Raja Ram (2004). Histochemical observations on the tertiary follicles of ovary in goat (*Capra hircus*). Abstract in pre-conference bulletin. pp. 05
- (17) Gupta S. K.; Ajay Prakash and Raja Ram (2004). Biometric studies on the ovary of goat (*Capra hircus*). Abstract in Pre-conference Bulletin pp. 05
- (18) Archana; Sharma D. N. and Katiyar R.S. (2004). Growth pattern of the testes of the entire and castrated Gaddi goat (*Capra hircus*). Abstract in Pre-conference Bulletin pp. 15
- (19) Archana; Sharma D. N. and Katiyar R.S. (2004) Effect of castration on the morphological parameters of the accessory sex glands of Gaddi goat (*Capra hircus*). Abstract in Pre-conference Bulletin pp.16
- ¹⁶⁻¹⁹Papers presented during the XIX Annual Convention of I.A.V.A. and National Symposium held at College of Veterinary Science and Animal Husbandry Kolkata. (Nov. 16-18, 2004)



VETERINARY AND ANIMAL HUSBANDRY EXTENSION

Needs of livestock workers and launching of newer programmes for their welfare depends on effective implementation, coordination and monitoring. For better understanding the needs of livestock owners and effective implementation of livestock developmental programmes, extension discipline was not only introduced in degree course of B.V.Sc.&A.H., but for further strengthening, M.V.Sc and Ph.D degree programmes were also started in many of the SAU's and Veterinary universities.

The Department of Extension was established in the College in the year 1962-63. The department imparts theory and practical teaching to undergraduate students so that they are able to motivate the farmers for adoption of improved animal husbandry and livestock marketing practices. In addition, department also looks after all the extension activities of the University. At the behest of Directorate of Resettlement of Government of India, one month training programme in Animal Husbandry and Poultry rearing for Ex-military personnels was started in 1978-79 and large number of batches have been trained so far. This training programme is organised thrice a year and the programme has proved of enormous use during post superannuation period to army men. Since the inception of department, it is participating in all the extension activities for the transfer of technology to farmers.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. S. D. Singh	MVSc PhD	Professor and Head

TEACHING PROGRAMMES :

Department is involved in teaching Veterinary and Animal Husbandry Extension courses to undergraduate (BVSc&AH) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

I Semester	AHE 111 (Sociology & Principles of Vet. and A.H. Extension)	1+1
II Semester	AHE 121 (Livestock Economics, Marketing and Business Management)	2+1
VII Semester	AHE 411 (Extension Tech. in Vety. Practice and Livestock Production)	1+1

RESEARCH PROGRAMME :

No MVSc degree programme is there in the department. The need-based research is carried out in liasion with department of animal nutrition.

EXTENSION ACTIVITIES :

With in limited resourses, department is carrying out extension activities through constant linkage with AIR Mathura, Doordarshan Delhi, local and national news agencies to disseminate useful informations related to livestock. Department also arranges visits of groups of progressive farmers, livestock owners and students to improve their knowledge about rearing of livestock.

Training Programme for Ex-Army Personnels :

During the period under report, with the coordination of Directorate of Resettlement, Ministry of Defence, Govt. of India, fifteen one month duration training programmes have been organized for pre release ex-military personnels with the objective of providing them technical knowledge to start their own dairy/poultry units after their retirement from services.



VETERINARY BIOCHEMISTRY

Department of Biochemistry was initially a constituent section of Physiology Department and later became independent in the year 1984. The Department organised a summer school on "Instrumentation in Veterinary Clinical Biochemistry" and an International Seminar on "Foetal Biology". One research project on frozen semen was successfully completed with financial assistance of international foundation for Science, Sweden. This department imparts instructional training to under-graduates and post graduates students on various aspects of Veterinary Biochemistry.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. Kranti Dev	MVSc PhD	Professor & Head
Dr. A. K. Jain	MVSc PhD	Professor
Dr. Rajesh Nigam	MVSc PhD	Professor

TEACHING PROGRAMMES :

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

I Semester	VBC 111 (General Veterinary Biochemistry)	2+1
II Semester	VBC 121 (Physiological Chemistry)	2+1
II Semester	VBC 122 (Introduction of Molecular Biology & Biotechnology)	1+1
VII Semester	VBC 411 (Veterinary Clinical Biochemistry)	1+1

MVSc Programme

Two years MVSc degree programme consists of one-year course programme during the MVSc (Previous) and during the final year, students take up their research work and submit the thesis. Various aspects of Veterinary Biochemistry are taught as per the details given below :

MVSc (Previous)

Paper I	(General Biochemistry)
Paper II	(Physical Biochemistry & Composition of Tissue)
Paper III	(Biochemistry of Metabolism)

MVSc (Final)

Research work and submission of thesis.

PhD Programme

PhD degree programme is without any course work and award of degree is by research work and submission of thesis.

RESEARCH PROGRAMME :

Research in the department is mainly focused on rumen metabolism, biochemical, immunological and metabolic studies on semen of domestic animals, red blood cell biochemistry of domestic animals, biochemical polymorphism and a relationship with economic traits in poultry, sheep and goats, biochemical studies of saliva and cervical mucus in farm animals, biochemical aspects of male reproduction and kinetics and genetic control of RBC enzymes.

PARTICIPATION IN CONFERENCES / SEMINARS :

1. Dr. Kranti Dev - International Conference on "Biotechnology approaches for alleviating malnutrition and human health" at University of Agricultural Science, Bangalore (Jan. 9-11, 2006)

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES :

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. Amit Kumar	2001	A study on biochemical composition of cow's urine	Dr. Rajesh Nigam
2.	Dr. Manish Mahavar	2001	Seasonal variation in blood metabolic profile in Jamunapari and Marwari goats	Dr. A. K. Jain Dr. Puneet Kumar
3.	Dr. Brijesh Rawat	2002	Changes in concentration of certain blood biochemical constituents in indigeneous crossbred cattle during late pregnancy and early lactation in relation to milk yield	Dr. Rajesh Nigam
4.	Dr. Uzma -	2002	Standardization of biological and immunological assays of pregnant mare serum gonadotropins (PMSG) in immature rats	Dr. A. K. Jain Dr. B.D.Lakhchaura
5.	Dr. Pawanjeet Singh	2004	Effect of Selenium and Vitamine E supplementation on the blood chemistry of growing Haryana calves	Dr. Rajesh Nigam
6.	Dr. Pranjal Pratim Saikia	2005	Molecular characterization of myofibrillar protein isoforms and myf-5 gene in Indian goats	Dr. Rajesh Nigam Dr. P. K. Rout
7.	Dr. Rituraj Gogoi	2005	Comparitive studies on uterine and fetal fluid proteins in pregnant and non-pregnant buffalo (<i>Bubalus bubalis</i>) using one and two dimensional electrophoresis	Dr. Kranti Dev



VETERINARY CLINICAL MEDICINE, ETHICS & JURISPRUDENCE

Department of Medicine was established in the erstwhile U.P. College of Veterinary Science and Animal Husbandry, Mathura in 1950. The course was initially limited to final B.V.Sc & A.H., however later from 1958-59, the course was split into 2 parts as Clinical Medicine & Jurisprudence for 3rd B.V.Sc & A.H. and Preventive Medicine and Meat Inspection for final B.V.Sc & A.H.

Kothari Veterinary Hospital was established in the year 1949 with the generous and magnificent donation of Rs. 4.5 Lakhs by Late Seth Chand Narsing Das Kothari of Bikaner. The hospital was opened for public on November 7, 1949. In order to furnish the hospital well, complete equipments and medicines for 100 patients were purchased from U.S. Army disposal.

Since then, the hospital is not only catering the need of different departments including District Dairy Demonstration farm, Mathura but also serves the needs of thousands of the heads of cattle owned by farmers of the near by villages. The average number of cases treated in the hospital varies with different seasons and ranges from 20 to 30 cases per day. The animals requiring special diagnosis, treatment and major surgical interventions are referred to this hospital from other places of the state and adjoining districts of the neighbouring states. There are some 30 in-door wards to house such animals. Hospital is equipped with the facilities for radiography, physio-therapy and clinical diagnosis.

Hospital not only renders services for treatment and control of diseases of animals, but also facilities for training of under - and post-graduate students in veterinary clinical practice on modern lines and offers an excellent material for research and a venue for extension.

Ambulatory Clinic in the Department of Medicine was started in July 1959 to provide the practical clinical training in the subjects of Medicine, Surgery and Gynaecology to final B.V.Sc. & A.H. and M.V.Sc. (P) students and to provide medical aid to villagers in different villages of Mathura district. The students visit the villages - Rall, Jachaunda and Bhainsa once a week. Later from July 1963 students started visiting regularly Sonai and Bisawar also. In 1973 the center was shifted to Rall and Chaumuha. In 1978, ambulatory center was shifted to village Sonai (22km) on way from Mathura to Hathras road. On an average 40-50 cases are treated in one visit. After establishment of University, the ambulatory centers have been shifted to Sonai and Deen Dayal Dham, Farah.

Post Graduate training leading to M.V.Sc. and Ph.D. degree was started in 1962 and 1970 respectively.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. H. P. Lal	MVSc PhD	Professor and Head
Dr. S. D. Sharma	MVSc PhD	Presently Dean, Veterinary College, Mathura - w.e.f. 19 th Jan. 2005

TEACHING PROGRAMMES :

Department is involved in teaching Veterinary Clinical Medicine, Ethics and Jurisprudence to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc & AH Programme

As per the course-curriculum of Veterinary Council of India, following courses are being offered/taught at undergraduate level :

VIII Semester	VCM 421 (Clinical Veterinary Medicine - I)	2+0
VIII Semester	VCM 422 (Clinical Veterinary Medicine - I Clinics)	0+2
IX Semester	VCM 511 (Clinical Veterinary Medicine - II)	2+0
IX Semester	VCM 512 (Clinical Veterinary Medicine - II Clinics)	0+2

MVSc Programme

The Post-Graduate Programme (MVSc) is continuing in traditional/annual system. Two-year MVSc degree programme consists of one-year course programme during the MVSc (Previous) and during the final year, students take up their research work and submit the thesis. Various aspects of Veterinary Clinical Medicine, Ethics and Jurisprudence are being taught as per the details given below :

MVSc (Previous)

Paper I	(Clinical Medicine)
Paper II	(Preventive Medicine I)
Paper III	(Preventive Medicine II)

MVSc (Final)

Research work and submission of thesis.

PhD Programme

PhD degree programme is without any course work. Award of degree is only by research work and submission of thesis.

LIST OF THE POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES Ph.D.

S.No.	Name of Student	Year	Thesis Title	Guide
1.	Dr. Akhilesh Kumar	2003	Epidemiological studies on gastro-intestinal helminth diseases of small ruminants, its zoonotic importance and chemotherapy of haemonchosis.	Dr. S. D. Sharma
2.	Dr. Nidhi Arora	2004	Evaluation of some indigenous plants against burate worm infection in goats.	Dr. S. D. Sharma
3.	Dr. V. K. Gupta	2004	Studies on status of ketosis in goats and sheep.	Dr. S. D. Sharma

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide
1.	Manoj Kumar Gupta	2001	Studies on some aspects of post parturient haemoglobinuria in dairy animals and their interaction with soil and feeds.	Dr. B. B. Panday
2.	Sanjay Jain	2002	Studies on opisthorchiasis in dog with special reference to bio-chemical alteration and its zoonotic importance.	Dr. B. B. Panday
3.	Nagendra Gupta	2003	Studies on prophylactic efficiency of herbal anticoccidial, "HZYSS-2" against coccidiosis with special reference to immunomodulatory effects of "IMMUPUS" and "Kamchenuark" in chicks.	Dr. B. B. Panday
4.	Umakant Singh	2004	Studies on acaricidal property of <i>Tagetes erecta</i> , <i>Butea fronsosa</i> & <i>melia Azedarach</i> plants with their phyto-chemical analysis.	Dr. H. P. Lal
5.	Durga Ram	2004	Studies on toxicidal properties of <i>Eucalyptus hybrida</i> , <i>Lantana camara</i> , <i>Embelia ribes</i> & <i>Eucalyptus</i> oil in animals with phytochemistry.	Dr. H. P. Lal
6.	Manpal Singh	2004	Studies on some aspects of subclinically & clinical mastitis in cows and buffaloes with special reference to incidence, etiology, diagnosis and treatment.	Dr. H. P. Lal
7.	Ashok K. Sharma	2005	Epidemiological, haematological and therapeutic studies on ancylostomiasis in dogs.	Dr. H. P. Lal

PUBLICATIONS - RESEARCH PAPERS AND ABSTRACTS :

- Gupta, V.K., Kumar A. and Sharma, S.D. (2001). Effect of environmental factors on prevalence of clinical caprine mastitis. *Indian J. Vet. Med.*, 20 : 82.
- Kumar, A., Sharma, S.D. and Joshi, B.P. (2001). Incidence of common alimentary tract disorders in bovines in Mathura district. *Indian. J. Anim. Sci.*, 72 (2) : 125.

3. Kumar, A.; Sharma, S.D. and Joshi, B.P. (2002). A sample survey of foreign bodies in fore stomachs of abattoir buffaloes. *Indian Vet. Med. J.*, 26 : 144.
4. Kumar, A.; Sharma, S.D. and Joshi, B.P. (2002). Blood glucose profiles in spontaneous rumen dysfunction in buffaloes. *Indian J. Anim. Sci.*, 72 : 1124.
5. Arora, Nidhi; Kumar, A. and Sharma, S.D. (2003). Effect of bursate worm infection on blood profiles in goats and sheep. *Indian Vet. J.*, 80(11) : 2003.
6. Sharma, S.D. (2003). A case of cerebral babesiosis in a colt. *Indian Vet. J.*, 80 : 61-62.
7. Arora, Nidhi and Sharma, S.D. (2003). Prevalence of Haemonchus infection in goat under semi intensive system. *Indian J. Anim. Sci.*, 72 : 1124.
8. Kumar, A.; Sharma, S.D. and Joshi, B.P. (2003). Concepts in rumen-dysfunctions and rumenotonics in cattle and buffalo. *Intas Polivet*, 4(11) : 27.
9. Lal, H.P. and Gupta, Nagendra (2004). The role of nutrition in optimizing skin and coat condition. *Souvenir : Inaugural Congress of Indian Society for Advancement of Canine Practice and National symposium on "Recent trends in Canine Practice"* (Apr. 8-9, 2004)
10. Lal, H.P. (2004). *Wild Animal Medicine : A Veterinary View. Souvenir, Asian Congress of Zoo and Wild Life Veterinarians and Workshop on "Quarantine, Réstraint and Translocation of Wild Animals"* and 3rd Annual Convention of Association of Indian Zoo and Wildlife Veterinarians; (Feb. 4-5, 2004)
11. Uniyal, Poonam.; Kumar, Ravindra and Lal, H.P. (2005). Vaginal discharge in non pregnant bitch. *Intas Polivet*, 5(11) : 350-353.
12. Lal, H.P. (2005). Do You Know. *SRIJAN : Magazine, U.P. Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan, Mathura* pp. 15.
13. Sharma, S.D. (2005). Stomach Bot infection in horse – A case report *Centaur*. 22 (2) : 26-27.
14. Sharma, S.D. (2005). On some zoonotic aspects of canine diseases. *Compendium of International Congress of canine practice, New Delhi, 9-11 February, 2005.*
15. Yadav, Roopali, Lal, H.P.; Gupta, Nagendra and Kumar, Himanshu (2006). Bovine cutaneous papillomatosis in cattle calf : a case report. *Abstracts Compendium*, pp. 4
16. Yadav, Roopali and Lal, H.P. (2006). Gingivitis – Stomatitis in a Persian cat – a case report. *Abstracts Compendium*, pp. 16
- 15-16 papers presented at National Symposium on "Current trends in diagnostic and therapeutic approach towards better health and production in livestock, poultry and companion animals". XXIV Annual Convention of the Indian Society for Veterinary Medicine (Feb. 22-24, 2006)
17. Yadav, Roopali and Lal, H.P. (2006). Transmissible venereal tumor in the left nare of a mixed breed dog. *Compendium* : 38.
18. Yadav, Roopali; Gupta, Nagendra and Lal, H.P. (2006). Therapeutic management of bilateral corneal opacity in a dog with vitamin A. *Compendium* : 39.
19. Yadav, Roopali and Lal, H.P. (2006). Nasal aspergillosis in a dog. *Compendium* : 90.
- 17-19 Paper presented during the National Congress of canine practice : Symposium on Canine Practice vision for the future : 3rd Annual Convention of the Indian Society for Advancement of canine practice (ISACP) held at Bhubaneswar (Feb. 10-12, 2006)
20. Yadav, Roopali; Mishra, Dhananjay and Lal, H.P. (2006). Feeding geriatric dogs. *Pashudhan*, March, pp. 5.



VETERINARY EPIDEMIOLOGY & PREVENTIVE VETERINARY MEDICINE

The department serves as the "Apex diagnostic laboratory" to the Animal Husbandry Department of U.P. The department has contributed in the diagnosis, prevention and control of different infectious and contagious diseases. The philosophy of this department is Hippocrate's dictum :

- ❖ Declare the past,
- ❖ Diagnose the present and
- ❖ Fore tell the future

Mission of the department is "Promoting the health and productivity through diagnosis, control and prevention of diseases" and the missions are carried out by :

- ❖ Imparting education in the field of Veterinary Epidemiology and Preventive Veterinary Medicine
- ❖ Diseases surveillance and investigational work including molecular epidemiology.
- ❖ Extension work.
- ❖ Disease diagnosis and control using modern techniques.

Detection of foot and mouth disease virus type Asia – 1 and type 'O' was the initial contribution in India and at global level of this department. All India Co-ordinated Research Project (AICRP) for Epidemiological studies on FMD is successfully running in the department. The Post graduate programme for award of M.V.Sc. degree in this discipline started from the year 2002.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. B. C. Pal	MVSc PhD	Professor and Head
Dr. Sharad Kumar Yadav	MVSc PhD	Asso. Professor

TEACHING PROGRAMMES :

Department is involved in teaching Veterinary Epidemiology & Preventive Veterinary Medicine to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

VII Semester	VEP 411 (Veterinary Epidemiology)	1+1
VIII Semester	VEP 421 (Preventive Veterinary Medicine - I)	2+0
VIII Semester	VEP 422 (Preventive Veterinary Medicine - I Clinical)	0+2
IX Semester	VEP 511 (Preventive Veterinary Medicine - II)	2+0
IX Semester	VEP 512 (Preventive Veterinary Medicine - II Clinical)	0+2

MVSc Programme

Two-year MVSc degree programme consists of one-year course work during MVSc (Previous). During the final year, students take up their research work and submit the thesis. Various aspects of infectious and contagious diseases viz. out break, surveillance and monitoring are taught as per the details given below :

MVSc (Previous)

Paper I	(Epidemiology)
Paper II	(Epidemiology & Preventive Medicine - I)
Paper III	(Epidemiology & Preventive Medicine - II)

MVSc (Final)

Research work and submission of thesis.

PhD Programme

PhD degree programme is without any course work and award of degree is by research work and submission of thesis.

RESEARCH PROGRAMME :

1. A regional centre of All India Coordinated Research Project on Epidemiological Studies on Foot and Mouth Diseases. - ICAR.
2. A research project on "Impact of Vaccination on the Control of Bovine Brucellosis". - UPCAR
3. "Molecular Epidemiology of *Mycoplasma bovis* in Ruminants" - ICAR.

FACILITIES AVAILABLE :

This department serves as the main reference centre for disease diagnosis laboratory for livestock health problems in the state. Special focus is provided to the epidemics, which spread fast and lead to heavy morbidity and/or mortality. Such epidemics are investigated and the diagnosis is made and conveyed to the State Veterinary Officers along with the necessary technical advice for prevention and control of diseases to maintain health status.

TRAININGS ATTENDED :

Name of Participant	Date	Name of Training/Institute
Dr. B. C. Pal	Feb.7-21, 2004	Techniques in species-specific PCR / RFLP for mycoplasma speciation, 16r RNA for Mycoplasma species at Mycoplasma Diagnostic Unit of the State of IOWA Laboratory, College of Veterinary Medicine, Ames - IOWA, USA.

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES :

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. C. P. Singh	2004	Epidemiological studies on foot & mouth disease and its vaccination strategies in buffaloes.	Dr. S. K. Yadav Dr. B. C. Pal
2.	Dr. Naresh Kumar	2005	Sero-epidemiological studies on bovine brucellosis and its immune response to <i>Brucella abortus</i> strain - 19, vaccine in cattle and buffaloes calves.	Dr. B. C. Pal Dr. S. K. Yadav
3.	Dr. Dilip Kumar	2005	Epidemiological studies of Gastrointestinal parasites of buffaloes.	Dr. B. C. Pal Dr. S. K. Yadav
4.	Dr. Bhawna Gupta	2005	<i>Mycoplasma capricolum</i> : Isolation and molecular diagnosis.	Dr. B. C. Pal Dr. S. K. Yadav
5.	Dr. Manisha Chaudhary	2005	Sero-prevalence of bovine brucellosis and diagnosis by polymerase chain reaction.	Dr. S. K. Yadav Dr. B. C. Pal
6.	Dr. Manish Patel	2005	Impact of Staphylococcal toxoids for control of sub-clinical mastitis in bovine.	Dr. B. C. Pal Dr. S. K. Yadav
7.	Dr. Pankaj Singh	2005	Studies on Seroepidemiology & Molecular diagnosis of PPR in goats.	Dr. S. K. Yadav Dr. B. C. Pal

PUBLICATIONS - RESEARCH PAPERS AND ABSTRACTS :

1. Pal, B.C. and Singh, P.P. (2002). Mycoplasmal arthritis in farm animals. Abstract : 52 pp. 47. 14th International Congress of the International Organization for Mycoplasmaology (IOM) held at Vienna, Austria. (July 7-12, 2002)
2. Udit Jain, B.C.Pal and Sharad .K.Yadav. (2003) Urine therapy : A Boon for Biologists. Agro bios News letter 2- Issue No.7
3. Pal, B.C., Singh, P.P. and Yadav, S.K. (2004). In Vitro Antibiotic susceptibility of *Mycoplasma bovis* from buffaloes in India. Abstract No. 273
4. Yadav , S.K. Pal, B.C. (2004). ELISA : A survey test for detection of *Mycoplasma bovis* genitalium in infertile bovine. Abstract No.157
³⁴ Papers presented at 15th International Congress of IOM held at Athens, Georgia, USA. (July 11-16, 2004)
5. Yadav, S.K., Sharma, S.K. Pal, B. C. and Singh, P.P. (2004) Emergence of Foot and Mouth Disease in North India. Indian Vet. Med. J. 28 : 181-182
6. Yadav, S. K. and Pal B.C. (2004) The role of wild life in spread of Foot and Mouth Disease in North India. National symposium on veterinary public Health in New Millenium Opportunities and Challenges, held at G. B. Pant Nagar University of Agriculture and Technology (Dec. 28-29, 2002)
7. Yadav, S.K. and Pal, B.C. (2004) Foot and Mouth Disease in Animals a major problem for farmers and industry. Paper presented at International and Market Place-rapid methods Europe organized by Agro technology and food innovations Netherland, held at Netherland. (Mar. 25-26, 2004)
8. Yadav, S.K. and Pal, B. C. (2004) Foot and Mouth Disease : Impact on Indian industries and it's control.
9. Yadav, S.K. and Pal, B.C. (2004) Global situation of FMD and it's control,
⁶⁰ Papers presented at Annual Scientist Meet held at Veterinary University, Mathura (Jan. 9-10, 2004)
10. Udit jain, B.C. Pal and Sharad K. Yadav (2005) Mycoplasmas and its role in HIV infection. Agro bios News letter 3 No X- 41.
11. Yadav, S.K. and Pal, B.C. (2006) Foot and Mouth Disease : Current Scenario. Annual conference of the Association for general and Applied Microbiology (VAAM) held at Jena, Germany (Mar. 19-22, 2006)



VETERINARY MICROBIOLOGY

Since establishment, the department has made significant contributions in the field of microbiology and immunology. The department has isolated and reported four new *Salmonella* serotypes viz. *S. mathura*, *S. gokul*, *S. govardhan* and *S. brijbhumi* for the first time in the world. Twenty two more *Salmonella* serotypes for typhoid, paratyphoid diarrhoea and food poisoning were reported first time in the country by this department. First time in the world, a new streptococcus in swines was reported from this department. Detailed studies on etiological agents for neonatal diarrhoea in calves were also undertaken and four different types of vaccines against different strains of *E.coli* causing neonatal diarrhoea were prepared. Since establishment, seven research projects have been successfully completed by the department which included microbiological study of respiratory diseases in poultry, F.M.D. and Mycoplasma.

Presently the department is equipped with excellent facilities to impart theory and practical training to UG and PG students and to conduct research in various aspects of microbiology including immunology.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. A. K. Bhatia	MVSc PhD	Professor and Head
Dr. C. M. Kulshrestha	MVSc	Asso. Professor

TEACHING PROGRAMMES :

Department is involved in teaching Veterinary Microbiology to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered at undergraduate level :

III Semester	VMC 211 (Veterinary Microbiology)	2+1
IV Semester	VMC 221 (Veterinary Immunology and Serology)	2+1
V Semester	VMC 311 (Veterinary Bacteriology and Mycology)	2+1
VI Semester	VMC 321 (General & Systemic Veterinary Virology)	2+1

MVSc Programme

Two-year MVSc degree programme consists of one-year course programme in traditional system during the MVSc (Previous). The students take up their research work and submit the thesis during the final year. Various aspects of Veterinary Microbiology are being taught as per the details given below :

MVSc (Previous)

Paper I	(General Bacteriology and Immunology)
Paper II	(Systematic Bacteriology and Mycology)
Paper III	(Virology)

MVSc (Final)

Research work and submission of thesis.

PhD Programme

PhD degree programme is without any course work and the award of degree is only by research work and submission of thesis.

RESEARCH PROGRAMME :

- ❖ NATP project on "Vaccine strategies for prevention of bacterial diarrhoea in national calves" was run by the department during the period under report.



VETERINARY PARASITOLOGY

This department was established in 1949 to teach the undergraduate students. M.V.Sc. and Ph.D. programmes were started in 1956 and 1963, respectively. So far, 59 M.V.Sc. and 13 Ph.D. students have earned their degrees from this department.

Research unit for the diagnosis and control of parasitic diseases was established in the department in September 1959. Research work on various aspects of parasitic diseases of bovine, equine, ovine, caprine, swine, canine, feline, poultry and wild and zoo animals is being undertaken. Free diagnostic service is regularly provided by examining faecal samples, blood smears and morbid tissues and accordingly the treatment and control measures are suggested.

Since establishment, department has the credit of reporting 86 new species of parasites for the first time in the world (8 trematodes, 2 cestodes, 18 nematodes, 3 acanthocephala and 55 coccidian species). Additionally, three books have also been published by the faculty members of this department.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. R. D. Agrawal	MVSc PhD	Professor and Head
Dr. Daya Shankar	MVSc PhD	Associate Professor

TEACHING PROGRAMMES :

Department is involved in teaching Veterinary Parasitology to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

III Semester	VPA 211 (General Veterinary Parasitology)	1+1
IV Semester	VPA 221 (Veterinary Helminthology)	2+1
V Semester	VPA 311 (Veterinary Entomology and Acarology)	1+1
VI Semester	VPA 321 (Veterinary Protozoology)	2+1

MVSc Programme

Two-year MVSc degree programme consists of one-year course programme during the MVSc (Previous) and during the final year, students take up their research work and submit the thesis.

MVSc (Previous)

Paper I	(Helminthology)
Paper II	(Protozoology)
Paper III	(Entomology)

MVSc (Final)

Research work and submission of thesis

PhD Programme

PhD degree programme is without any course work and award of degree is by research work and submission of thesis.

RESEARCH PROGRAMME :

Research work on various aspects of parasitic diseases of bovine, equine, ovine, caprine, swine, canine, feline, poultry and wild and zoo animals is being undertaken.

FACILITIES AVAILABLE :

Routine laboratory facility for examination of faecal samples, blood smears, morbid tissues are available in the department.

CONTRIBUTIONS AND ACHIEVEMENTS :

- ❖ Dr. R. D. Agrawal, Professor and Head and Dr. Daya Shankar, Associate Professor were awarded the Best Teacher Award of the University on 5th of September 2005 by the Hon'ble Vice Chancellor of the University.

PARTICIPATION IN CONFERENCES / SEMINARS :

S.No.	Name of Participant	Seminar/Confrence/Symposium
1.	Dr. R. D. Agrawal Dr. Daya Shankar	Seminar on "Infertility in cattle problems its solution in field conditions" organized by U P Veterinary council at UP Pt. D.D. Upadhyaya Pashu Chikitsa Vigyan Vishwavidhyalaya, Mathura (Jan. 5, 2002)

2.	Dr. R. D. Agrawal Dr. Daya Shankar	Workshop on " Selection of breeding bulls, frozen semen production and its certification at National level" at UP Pt. D.D. Upadhyaya Pashu Chikitsa Vigyan Vishwavidhyalaya, Mathura (March 11-12, 2004)
3.	Dr. Daya Shankar	National Seminar on Enterprenurship Development for Livelihood Security-Experiences, Prospects & Strategies for Rural India, Organized by Indian Veterinary Research Institute, Izatnagar (Society for Community Development, New Delhi) [Nov. 29 - Dec. 1, 2005]

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide
1.	A.K. Verma	2002	Studies on some aspects of tick infestation in dog.	Dr. Daya Shankar
2.	S.K. Kanaujia	2002	Studies on some aspects of tick infestation in domestic goat.	Dr. Daya Shankar
3.	V.S.S. Patel	2002	Studies on the effect of gastrointestinal parasites on haematology and body weight in goats and buffalo calves.	Dr. R. D. Agrawal
4.	R.R. Singh	2004	Studies on the seroprevalence of trypanosomiosis and babesiosis in cattle and buffaloes in some districts of Rajasthan.	Dr. R. D. Agrawal

PUBLICATIONS :

1. Agrawal, R.D. (2001). Occurrence of *Eimeria canadensis* Bruce, from gayal (*Bos frontalis*). Indian Vet. J. 78 (4): 346.
2. Agrawal, R.D., and Chauhan, P.P.S. (2001) On the occurrence of *Ancylostoma duodenale* and *A. paraduodenale* in a lion. (*Panthera leo*). J. Vet. Parasitol. 15 (1): 59-62.
3. Kumar R., Chauhan, P.P.S, Agrawal R.D. and Shanker D. (2001). Efficacy of Fluemethrin pour-on (Bayticol) against tick infestation on cattle and buffaloes. J. Vet. Parasitol. 15 (2): 167-68.
4. Sharma, D.K.; Chauhan, P.P.S.; Saxena, V.K. and Agrawal, R.D. (2001). Changes in level of enzymes and total proteins during experimental haemonchosis in Barbari goats. Small Ruminant Research. 42: 119-123.
5. Garg, Gagan; Sharma, D.K., Agrawal, R.D. and Rout, P.K. (2003). Epidemiology of *Haemonchus contortus* infection in goats in semi-arid region of India. J. Vet. Parasitol. 17 (1) : 57-60.
6. Singh, Rajpal and Agrawal, R.D. (2003). Efficacy of amprolsol against coccidian infections in buffalo calves, J. Vet. Parasitol. 17 (1) : 77-78.
7. Singh Rajpal and Agrawal, R.D. (2003) Incidence of coccidian infections in buffaloes in Mathura. J. Vet parasitol. 17 (2) 169-170.
8. Sharma, D.K.; Chauhan, P.P.S. and Agrawal, R.D. (2005). Alterations in leucocyte counts in Barbari goats experimentally infected with *Haemonchus contortus*. Indian J. Anim. Sci. 75 (6): 623-625.
9. Singh, V.S.; Chauhan, P.P.S.; Agrawal, R.D. and Shankar, D. (2005). Effect of some agents on embryonation and viability of eggs of *Toxocara vitulorum*. Indian J. Vet. Med. 25 : 106-107.
10. Singh, V.S.; Chauhan, P.P.S.; Agrawal, R.D. and Shankar, D. (2005). Comparative efficacy of ivermectin and C.D.R.I. Compound 81-470 against *Toxocara* infection in pups. Indian J. Vet. Med. 25 : 112-113.

PAPERS PRESENTED IN CONFERENCES :

1. Garg, G., Agrawal, R.D., Sharma, D.K. and Gupta, V.K. (2002). Prevalence of *Haemonchus contortus* infection among Barbari goats. Proc. XIIIth Natl. Cong. Vet. Parasitol. Uni. Vet. and Anim. sci., Kolkata (Dec. 14-16, 2002).
2. Verma, S.K. and Shanker, D. (2003) Acanthoid efficacy of Cyrotol, Neomec and Eprinex in naturally tick infested goats.
3. Verma, A.K. and Shanker, D. (2003). In-vitro efficacy of chemical against metamorphic stages of ticks of dogs.
4. Patel, V.S.S., Agrawal, R.D. and Johari, D.K. (2003). Gain in body weight of barbari goats treated against strongyloid infections.
5. Patel, V.S.S.; Agrawal, R.D. and Johari, D.K. (2003) Haematological studies before and after treatment against Strongyloid infections in Barbari goats.
²⁻⁵ Papers presented at XIV National Congress Vet. Parasitol held at Nagpur Vet. College, Nagpur (Oct. 15-17, 2003).
6. Garg, G.; Sharma, D.K.; Agrawal, R.D. and Rout, P.K. (2004) Vaccination against *Haemonchus contortus* infection in Barbari goats with low molecular proteins and crude somatic antigens. Proc. XVI Natl. Cong. Parasitol. M.J.P. Rohilkhand Uni. Bareilly, U.P. (Oct. 31 - Nov. 2, 2004)
7. Singh, R.R.; Agrawal, R.D.; Tewari, A.K.; Rao, J.R. and Mishra, A.K. (2004) Incidence of *Trypanosoma evansi* in cattle and buffaloes of Rajasthan by indirect fluorescent antibody test.
8. Singh, R.R., Agrawal, R.D., Tewari, A.K., Mishra, A.K. and Rao, J.R. (2004) Sero-prevalence of bovine babesiosis by I.F.A.T. in cattle and buffaloes of Rajasthan.
9. V.S.Singh, P.P.S. Chauhan, R.D.Agrawal and Daya Shanker (2004) Efficacy of Dewormin against naturally infected buffalo calves with Strongyle nematode.
10. V.S.Singh, P.P.S. Chauhan, R.D.Agrawal and Daya Shanker (2004) Incidence of hydatid cyst in buffaloes and their development in experimental pups.
⁷⁻¹⁰ Papers presented at XV Natl. Cong. Vet. Parasitol., College Veterinary Science & A.H., G.B.P.U. of Agri. & Tech. Pantnagar (Oct. 25-27, 2004)
11. Singh, R.R.; Agrawal, R.D.; Tewari, A.K.; Mishra, A.K. and Rao, J.R. (2005) Prevalence of bovine babesiosis by ELISA in cattle and buffaloes of Rajasthan, Proc. VIIIth International Symposium on vectors and vector born diseases, Deptt. Zoology, Panjabi Uni. Patiala. (Feb. 18-20, 2005)



VETERINARY PATHOLOGY

The department is engaged in undergraduate and postgraduate teaching. The students are taught about the pathology and morbid anatomy of animal and poultry diseases. Special emphasis is given on postmortem examination and diagnosis of diseases of livestock and poultry. Work on four research projects has been undertaken and completed with commendable reports. Diagnostic services have been provided to various units of the college, other institutions and farmers.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. A. K. Srivastava	MVSc PhD	Professor and Head

TEACHING PROGRAMMES :

Department is primarily involved in teaching of Veterinary Pathology to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

III Semester	VPP 211 (General Pathology)	2+1
IV Semester	VPP 221 (Systemic Pathology)	2+1
V Semester	VPP 311 (Special Pathology - I)	2+1
VI Semester	VPP 321 (Special Pathology - II)	2+1

MVSc Programme

Two-year MVSc degree programme consists of one-year course programme during the MVSc (Previous). During the final year, students take up their research work and submit the thesis. Various aspects of Veterinary Pathology are taught as per the details given below :

MVSc (Previous)

Paper I	(General Pathology)
Paper II	(Systematic Pathology)
Paper III	(Special Pathology and Experimental Pathology)

MVSc (Final)

Research work and submission of thesis.

PhD Programme

PhD degree programme is in traditional system without any course work. Award of degree is only by research work and submission of thesis.

RESEARCH PROGRAMME :

During the period under report, department has carried out research on the :

1. Dropsy syndrome in sheep, buffalo calves, chickens and turkeys revealed that the buffaloes are most susceptible to the argemone toxicity. Typical dropsy like syndrome was clinically characterized by severe ascites and hydropericardium with escalation of mean arterial pressure in sheep and chickens with marked suppression of immune response after feeding the argemone seed / cake. Ophthalmoscopic examination showed turbidity in orbital fluid resulting into poor visibility of retina and poor red reflex. Electron microscopical studies of kidneys, liver, spleen and lungs revealed marked molecular changes in the organs. Quantitative studies with HPTLC indicated presence of 0.6-7.2 gram sanguinarine per hundred ml. of pure argemone oil.
2. Therapeutic evaluation of cow urine revealed its antibacterial and immuno-modulating activities. Topical application and oral feeding of urine in rats showed early development of granulation tissue with early regeneration of epidermis and fibroblasts in the process of surgical wound healing. Fractionation of cow urine protein revealed several fractions of protein with different molecular weights.
3. Fowl cholera studies in chicken, pigeons parrots, ducks, quails and turkeys were undertaken. Electron microscopic studies and total viable count of the organism (*P. multocida* A : 1) in blood at different intervals were carried out to elucidate the pathogenesis of infection. Molecular diagnosis by PCR was carried out in the morbid materials. An improved low volume fowl cholera vaccine with addition of vitamin E prepared in the laboratory was found to be highly effective compared to commercially available fowl cholera vaccine in birds.
4. Early gross and histopathological lesions of paratuberculosis were studied in experimental kids. All the animals were serologically positive by ELISA test on 120th DPI having the titre above the cut off value with varying grades of intestinal lesions.

PARTICIPATION IN CONFERENCES / SEMINARS :

1. Dr. A. K. Srivastava - Education policy meeting on "Quality assurance in Veterinary education in India - Issues and Strategies" held at Pantnagar (24-25th September, 2004)
2. Dr. A. K. Srivastava - "Intensive course on histopathology. Spontaneous and induced lesions in Wistar Han : Brl rats" held at NIPER, Mohali Chandigarh (18-19th March, 2005)

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES :

Ph.D.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-guide
1.	Dr. Archana Sharma	2004	Studies of virulence attributes of <i>E.coli</i> causing diarrhea in neonatal calves	Dr. A. K. Bhatia Dr. A. K. Srivastava

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-guide
1.	Vijay Kumar Sharma	2001	<i>E.coli</i> induced diarrhoea in neonatal kids-a clinicopathological and pathomorphological study	Dr. A. K. Srivastava Dr. A. K. Bhatia
2.	Dhirendra Singh	2001	Argemone seed toxicity in sheep - a clinical, clinicopathological and pathomorphological study	Dr. A. K. Srivastava Dr. Hukum Singh
3.	R. K. Tiwari	2001	Argemone seed toxicity in broilers - a clinical, clinicopathological and pathomorphological study	Dr. A. K. Srivastava
4.	Rajeev Kr. Tripathi	2002	Pathobiology of Argemone cake toxicity in buffalo calves - an experimental study	Dr. A. K. Srivastava Dr. Hukum Singh
5.	Hardeep Kumar	2002	Copper toxicity in sheep - a clinical, clinicopathological and pathomorphological study	Dr. A. K. Srivastava
6.	Sukanta Hajra	2003	Pathology of spontaneous and experimental paratuberculosis in goats with special reference to early lesion	Dr. A. K. Srivastava Dr. S. V. Singh (CIRG)
7.	Amita Gupta	2003	Effect of cow urine on the health of rats	Dr. A. K. Srivastava Dr. Rajesh Nigam
8.	Rajul Saxena	2004	Fowl cholera in experimental birds in reference to pathogenesis, pathobiology, molecular diagnosis and vaccine strategy.	Dr. A. K. Srivastava Dr. Rishendra Verma (IVRI)
9.	Vivek Srivastava	2005	Fowl cholera in quail with reference to vaccine efficacy and molecular diagnosis	Dr. A. K. Srivastava Dr. A. A. Kumar (IVRI)

PUBLICATIONS - RESEARCH PAPERS AND ABSTRACTS :

1. Kumar H and Srivastava A.K. (2002) Clinico hematological alterations in sheep due to copper toxicity. Indian J. Vet. Path. 25 : 35-37
2. Kumar H, Srivastava A.K. and Bhatia A.K. (2002) Studies on immune response in copper toxicity in sheep. J. Immunol. immunopathology 4 (1&2) 93-95

3. Singh R., Mishra K.K., Pandey R.P., Srivastava A.K. and Singh B. (2003) Squamous cell carcinoma of vulva in a mare. *Indian J. Vet. Surg.* 24 (1) : 67
4. Sharma V.K., Srivastava A.K. and Bhatia A.K. (2003) Clinicopathological studies on induced E.coli infection in kids, *Indian J. Vet. Path.* 27 : 50-50
5. A. K. Srivastava, A.K. Mathur, S. K. Tyagi, and V. Srivastava (2004) Infertility in bulls due to IBR at an organized farm- seroprevalence and pathomorphological studies. Paper presented in the national seminar on " Selection of breeding bulls, semen frozen production and its certification at national level held at UP PDDU PCV Vishwavidyalaya, Mathura (Mar. 11-12, 2004)
6. Amita Gupta, Rajul Saxena, Vivek Srivastava and A.K. Srivastava (2004) Go mutra ki jeevanu nashak kshamta- ek jeeve evam patre adhyayan. Paper presented in Tiritiya Aakhil Bhartiya Vigyan Sammelan, held at National Physical Laboratory, New Delhi (Feb. 19-21, 2004)
7. Amita Gupta, Rajul Saxena, Vivek Srivastava and A.K. Srivastava (2004) Effect of cow's urine on immune status of experimental rats. Paper presented during the Third Convention of Society for Immunology & Immunopathology & National Symposium on Cytokines & Signal Transduction. held at Agra (Feb. 13-15, 2004)
8. A.K. Srivastava, Vivek Srivastava & Rajul Saxena (2004) Cuticular pattern of hair in large cats- a study in forensic science. Paper presented during 4th Indian Veterinary Congress held at IVRI, Bareilly (Feb. 27-28, 2004)
9. A.K. Srivastava, Vivek Srivastava, Rajul Saxena and Atul K. Baranwal (2004) Balon ki charm parton se pashm kison ka gyan - ek adhyayan. Paper presented in the compendium of Tiritiya Aakhil Bhartiya Vigyan Sammelan, held at New Delhi. (Feb. 19-21, 2004)
10. Vivek Srivastava, Rajul Saxena, Ram Sagar and A. K. Srivastava (2004) Equine trypanosomiasis - a clinicopathological and therapeutic study. Paper presented in National symposium on recent trend in canine practice held at Lucknow. (Apr. 8-9, 2004)
11. A. K. Srivastava (2004) Pathological review of demodetic mange in pet dog. Starlight paper presented in the natural symposium on recent trend in canine practice held at Lucknow. (Apr. 8-9, 2004)
12. S.V. Singh, A.K. Srivastava, A.V. Singh, G. Sharma, D. Yadav and S. Kumar (2004) Isolation of Mycobacterium avium subsp paratuberculosis from the tissue samples of dog deer and its molecular characterization. Paper presented in the symposium of microbiology held at Palampur.
13. Rajul Saxena, Vivek Srivastava and A.K. Srivastava (2004) Pasteurella multocida (A : 1) -An invasiveness study in Experimental Chicken.
14. Rajul Saxena, Vivek Srivastava and A.K. Srivastava (2004) Experimental induced Fowl Cholera: an ultramicroscopic study in visceral organs in chickens.
15. S. Hazra, A. K. Srivastava (2004) Pathogenecity of S-5 strain of mycobacterium avium paratuberculosis in goats.
16. P Kumar, S. V. Singh, A. K. Bhatia, V. Srivastava, R. Saxena & A. K. Srivastava (2004) Para tuberculosis in Kids : A Cultural and pathomorphological study
13-16 Papers presented in Symposium held at Kolkatta (Nov. 23-25, 2004)
17. A.K. Srivastava, Vivek Srivastava and Ram Sagar (2005) Uremia due to renal failure in dog - clinicopathological and pathomorphological studies.
18. A.K. Srivastava (2005) Prevention and control of neoplasm in reference to indogenous techniques. (ITK)
17-18 Papers presented in Symposium on "Emerging challenges in canine practice held at New Delhi. (Feb. 9-11, 2005)
19. Prabha Katiyar, Bharat Singh, Ram Sagar and A.K. Srivastava (2005) Healing effects of leaves of *Azadirachta indica* on experimental wounds in buffalo calves. Paper presented in XIV National Seminar on "Recent advances in conservation of biodiversatiy and augmentation of reproduction and production in Farm animals held at Sardar Krushi Nagar (Feb. 26-28, 2005)
20. A.K. Srivastava (2005) Argemone seed toxicity in experimental sheep - An essay to toxic alkaloid and clinicopathological studies. Paper presented in the Symposium on "Emerging trends in plant pathology and their social relevance held at Annamalai, Tamilnadu (Mar. 7-8, 2005)

21. S. Hazra, S.V. Singh and Srivastava, A.K. (2005) Pathobiology of spontaneous and experimental paratuberculosis (S-5 Strain) in goats with special reference to early lesions.
22. S.V. Singh., P. Kumar, A.V. Singh and Srivastava, A.K., I. Sevilla, R.A. Juste and V.K. Gupta (2005) Prevalence and molecular characterization of Juvenile form of Paratuberculosis in Indian goat herds.
23. S.V. Singh., A.K. Srivastava, A.V. Singh and V.K. Gupta (2005) Mycobacterium avium sub sp. paratuberculosis infecting Hog deer": A case study.
²¹⁻²³ Paper presented in the 8th International Colloquium on Paratuberculosis held at The Royal Veterinary and Agricultural University, Copenhagen, Denmark (14-18 Aug, 2005)
24. Vivek Srivastava, D. Rawool, A.A. Kumar and A.K. Srivastava (2005) Diagnosis of fowl cholera in morbid materials by PCR.
25. Vivek Srivastava, Sameer Dinkar Pant, A.K. Srivastava and A.A. Kumar (2005) Pathology of fowl cholera in quails experimentally induced with P. multocida (A:1).
²⁴⁻²⁵ Paper abstracted in the symposium on "Newer concepts in animal and avian disease diagnosis" held on 25-27th November, 2005 at KNPVC, Shirwal.
26. D.K. Singh, Vivek Srivastava, Dinesh Singh, K.K. Tripathi, Satish Kumar and A.K. Srivastava (2005) Physico- chemical properties of petroleum refinery effluent. Paper presented in the International conference on Toxicology, environmental and occupational health held on at ITRC, Lucknow (Nov. 14-17, 2005)
27. Vivek Srivastava, C.K. Singh, V.K. Pandey, S.K. Singh, A.K. Srivastava and A.A. Kumar (2005) Experimental transmission of P. multocida in fishes.
28. Vivek Srivastava, S.K. Singh, A.K. Srivastava and A.A. Kumar (2005) Pasteurella multocida (A: 1): An invasiveness study in quails.
29. Vivek Srivastava, A.K. Srivastava and A.A. Kumar (2005). Pathobiology of fowl cholera in quail with reference to vaccine efficacy and molecular diagnosis.
²⁶⁻²⁹ Paper presented in the symposium on "Advances in Veterinary research-New horizon vis-a-vis Biosafety, Biosecurity and quality assurance through livestock feed" to be held at Orissa University of Agriculture and Technology, Bhubaneswar (Jan. 20-21, 2006)

POPULAR ARTICLES :

1. प्रचीन भारत में पशु चिकित्सा (2004) - A.K. Srivastava and A.K. Baranwal
2. गो-मूत्र में लाजबाब जीवाणुनाशक क्षमता - दैनिक जागरण 2004 - Amita Gupta, Rajul Saxena, Vivek Srivastava and A. K. Srivastava
3. अपराधियों की खाल उधेड़ सकता है बाल - दैनिक जागरण - Vivek Srivastava, Rajul Saxena, A. K. Srivastava and Atul K. Baranwal (3 अगस्त, 2004)
4. शोध : घातक 'फाउल कालरा' की वैज्ञानिकों ने खोजी काट - दैनिक जागरण - Vivek Srivastava, Rajul Saxena and A. K. Srivastava (26 नवम्बर, 2005)
5. टर्कों पर शोध - दैनिक जागरण - Sachin Kumar Singh and A. K. Srivastava (26 नवम्बर, 2005)
6. कुक्कुट प्रतिश्याय (बर्ड फ्लू, फाउल प्लेग) - मुर्गियों एवं मनुष्यों की खतरनाक बीमारी - Vivek Srivastava and Rajul Saxena
7. बालों की पत्तों से गौ एवं महिषवंशीयों की पहचान पशुपालन एवं पशु चिकित्सा विज्ञान मूलभूत एवं व्यवहारिक अनुसंधान राष्ट्रीय कार्यशाला (2006) - Ashok Kumar Srivastava, Atul Kumar Baranwal and D.K. Johari



VETERINARY PHARMACOLOGY & TOXICOLOGY

Department of Veterinary Pharmacology and Toxicology in the erstwhile U.P. College of Veterinary Science and Animal Husbandry, Mathura was established as the Department of Materia Medica in 1949. At that time, Materia Medica was taught in the third year of BVSc&AH degree programme. Later, with advancements and newer developments, the concept of experimental Pharmacology was introduced in teaching all over the globe. Accordingly, the Department of Materia Medica was renamed as the Department of Pharmacology in 1956. However, after the introduction of Veterinary Council of India's Course-curricula at BVSc&AH level, the Department was renamed as the Department of Pharmacology and Toxicology in 1995.

Post-graduate programme (MVSc) in this Department was started in 1962. By that time, Materia Medica had become almost redundant and the main focus and emphasis had shifted from Materia Medica and Therapeutics to Modern Pharmacology, particularly experimental pharmacology and toxicology.

Scientific contributions of Department in the field of Pharmacology and Toxicology of indigenous medicinal plants were very well appreciated and recognized within a short span of almost 7-8 years by the peer reviewers and Govt. As a result of which, this Department was accredited for Doctoral programme and the Department started PhD degree programme in 1970. So far, 6 students have completed their Ph.D. and 55 students M.V.Sc. degree from this department.

Since inception, Department has been effectively involved in teaching three main aspects of Pharmacology and Toxicology viz. general and systemic Pharmacology, Chemotherapy and Toxicology at undergraduate and post-graduate levels. However, in view of the emerging newer concepts and challenges, we have oriented our teaching and research programmes as per the need.

Department is mainly involved in teaching and research, however, as per the mandate of ICAR, SAUs and Veterinary Universities, we are also associated with all the extension activities of the University including training of farmers and officers of the State Animal Husbandry Department.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. Satish K. Garg	MVSc PhD FST	Professor and Head
Dr. H.S. Panwar	MVSc PhD	Professor
Dr. Rajendra Singh	MVSc PhD	Professor
Dr. K.M. Garg	MVSc PhD	Professor

TEACHING PROGRAMMES :

Department is involved in teaching Pharmacology and Toxicology to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

As per the course-curriculum of Veterinary Council of India, following courses are being offered/taught at undergraduate level :

V Semester	VPT 311 (General and CNS Pharmacology)	2+1
VI Semester	VPT 321 (ANS and Systemic Pharmacology)	2+1
VII Semester	VPT 411 (Chemotherapy)	2+1
VIII Semester	VPT 421 (Toxicology)	2+1

For practical demonstrations, computer simulated EXPHARMA software and for teaching some computer assisted learning procedure and software are being routinely employed.

MVSc Programme

Two-year MVSc degree programme is continuing in traditional/annual system and consists of one-year course during MVSc (Previous) and the students take up their research work and submit the thesis during the final year. Various aspects of Pharmacology and Toxicology are taught as per the details given below :

MVSc (Previous)

Paper I	(General and Systemic Pharmacology)
Paper II	(Chemotherapy)
Paper III	(Toxicology)

MVSc (Final)

Research work and submission of thesis

PhD Programme

PhD degree programme is in the traditional system without any course work and award of degree is only by research work and submission of thesis.

RESEARCH PROGRAMME :

Since inception of the post-graduate degree programmes, this Department has been pioneer in taking up research work on indigenous plants. Large number of medicinal, common and toxic plants have been screened for their pharmacological and toxicological properties/activities. Some of the plants have been found and reported to be highly promising for further detailed investigations under drug-development programmes and use in human and veterinary clinical practice.

Over the years, research in other important areas of pharmacology has also been taken up, namely characterization of autonomic and autacoids receptors and ion-channels in different organs/systems of ruminants and pharmacokinetic studies on some of the latest antibacterial agents which mainly include ciprofloxacin and ofloxacin in sheep, goats, buffaloes and cow calves including neonatal calves.

In view of the emerging trend and need of herbal drugs in post-WTO era, the Department envisages concentrating on indigenous medicinal plants and development of some suitable drug formulation(s) for future use. Clinical and pharmacological evaluation of drug formulations of pharmaceutical companies (both indigenous and allopathic) is also on the top of agenda. In fact, we are already running one such project financed by Indian Herbs Research and Supply Company Limited, Saharanpur.

Presently, fourteen post-graduate students (9 MVSc and 5 PhD) are on the rolls of Department. In view of the large number of post-graduate students and realizing the potential of the Department to attain excellence, the Hon'ble Vice Chancellor, Dr. Shree Krishna Garg had been kind enough during the financial year 2005-06 and provided generous funds for renovation of laboratories, purchase of equipment and other consumables. Most of the renovation work has been completed and equipment purchased.

During the period under report, department has carried out following research :

1. Pharmacokinetics of fluoroquinolones in cattle and buffalo calves and neonatal cow calves following intravenous, intramuscular and subcutaneous routes. The results revealed species and age-dependent differences in the disposition kinetic parameters. Accordingly, the dosage regimens were computed for judicious use of ofloxacin and ciprofloxacin in cow and buffalo calves including neonatal cow calves.
2. Toxic principle (Cyanogenetic glycoside - HCN) of *Acacia leucophloea* (Raunja) was quantified in different parts (leaves, flowers, bark, thorns, pods and woody tissue) of the plants collected from Mathura and its surrounding areas during different seasons from November 2001 to October 2002. Results suggested that pods and leaves contained highest content of HCN and accordingly are expected to be highly poisonous. The HCN content was higher

during summer and in younger plants compared to winter and in larger plants.

FACILITIES AVAILABLE :

Department has recently established the Clinical Pharmacology Laboratory for taking up research on evaluation of antibacterial activity and determination MICs of antimicrobial agents and indigenous plants against specific microbes of veterinary clinical importance isolated from clinical cases and pharmacokinetics of antimicrobial agents. Smooth muscle pharmacology laboratory for pharmacodynamic studies of drugs and medicinal plants at receptor and ion channel level(s) has also been upgraded with the purchase of a two-channel software based physiograph from ADI, Australia. In addition, we envisage giving more impetus to research on Medicinal Plants. Facilities for biochemical pharmacology and toxicology are also there in the department. All the post-graduate students of the Department of Pharmacology and allied disciplines are getting good exposure in these areas of research.

INDUSTRY SPONSORED ON GOING RESEARCH PROJECT

"Pharmacotherapeutic evaluation of a polyherbal antimicrobial growth promoter in broiler chicks and its *in-vitro* kill kinetics against certain common avian microbes" by "Indian Herbs Research and Supply Company Limited, Saharanpur".

CONTRIBUTIONS AND ACHIEVEMENTS :

- ❖ Veterinary Toxicology book edited by Satish Kumar Garg CBS Publishers and Distributors, New Delhi. (Three reprints published since 2000)
- ❖ Chapters contributed in books of Veterinary Pharmacology and Toxicology by Satish Kumar Garg, MA Ayub Shah and HS Panwar : 12
- ❖ Dr. Satish Kumar Garg, Professor and Head and Dr. H.S. Panwar, Professor were awarded the Best Teacher Award of University on 5th of September 2004 by the Hon'ble Vice Chancellor.
- ❖ Dr. Satish Kumar Garg, Professor and Dr. Ashok Gaur, MVSc student were awarded the Best Research Paper presentation award of the Indian Society of Veterinary Pharmacology and Toxicology during the 2nd Annual Conference held at Gujarat Agricultural University, Sardar Krushi Nagar(December 2001). Paper presented by Dr. Satish K. Garg.
- ❖ Dr. Satish Kumar Garg, Professor and Dr. (Ms) Arpita Mohan, MVSc student were awarded the Best Research Paper presentation award of the Indian Society of Veterinary Pharmacology and Toxicology during 3rd Annual Conference held at GB Pant University, Pantnagar (October 2002). Paper presented by Dr. Satish K. Garg.
- ❖ Dr. Satish Kumar Garg, Professor and Head was elected Secretary General of Society of Toxicology (STOX India) consecutively for two terms from 1999-2003.
- ❖ Dr. Satish Kumar Garg, Professor and Head elected as Secretary General of Indian Society of Veterinary Pharmacology and Toxicology (ISVPT) for the years 2005-07.

PARTICIPATION IN CONFERENCES / SEMINARS :

1. Dr. Satish Kumar Garg - XX Annual Conference of Society of Toxicology (STOX)-India held at Jai Research Foundation, Vapi (December 2-3, 2001).
2. Dr. Satish Kumar Garg - Second Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology held at Gujarat Agricultural University, Sardar Krushinagar (December 6-8, 2001).
3. Dr. Satish Kumar Garg - First International Conference of "Alternative Methods in Toxicology" held at New Delhi (Feb. 20-21, 2002).

4. Dr. Satish Kumar Garg -Third Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology held at G.B. Pant University of Agriculture and Technology, Pantnagar (October 24-26, 2002).
5. Dr. Satish Kumar Garg - XXIII Annual Conference of Society of Toxicology (STOX)-India held at Tamil Nadu University of Veterinary and Animal Sciences (November 20-22, 2003).
6. Dr. Satish Kumar Garg, Dr. K.M. Garg, Dr. H.S. Panwar and Dr. Rajendra Singh – National Seminar on "Selection of breeding bulls, frozen semen production and its certification at national level" held at UP Pt. Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya evam Gau Anusandhan Sansthan, Mathura (March 11-12, 2004).
7. Dr. Satish Kumar Garg - National Seminar on "Quality assurance in Veterinary Education in India- issues and strategies" held at GB Pant University of Agriculture and Technology, Pantnagar (September 24-24, 2004).
8. Dr. Satish Kumar Garg - 29th Annual Convention of the Indian Agricultural Universities Association, held at CCS Haryana Agricultural University, Hisar (January 12-13, 2005).
9. Dr. H.S. Panwar - National Seminar on Revision of Minimum Standards of Veterinary Education (B.V.Sc. & A.H.) Regulations at ANGRA University & Shri Venketaswara Veterinary University, Hyderabad (Aug. 29 - Sep. 7, 2005)
9. Dr. Satish Kumar Garg – Fifth Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology held at Madras Veterinary College, Chennai (November 24-26, 2005).

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES :

Ph.D.

S.No.	Name of Student	Year	Thesis Title	Guide
1.	Dr. Ved Prakash	2002	Comparative pharmacokinetic studies on certain chemotherapeutic agents with particular reference to mastitis in cows	Dr. H. S. Panwar.

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide
1.	Ashok Gaur	2001	Pharmacokinetics of ofloxacin in neonatal calves.	Dr. Satish K. Garg
2.	Pratishtha Sharma	2002	Plasma levels and non-compartment based pharmacokinetic behaviour of ofloxacin in female <i>Bubalus bubalis</i> calves	Dr. Satish K. Garg
3.	Vinod Kumar	2002	Monthly/seasonal screening of pastures containing <i>Acacia leucophloea</i> plant- a drought-hit area poison, for its killer principle-HCN around Mathura City.	Dr. Rajendra Singh

PUBLICATIONS :

1. S. Matta, Satish K. Garg, M.A. Ayub Shah, H.C. Pant and M. Sabir (2001). Concentrations of histamine and 5-hydroxytryptamine in certain reproductive tissues of buffaloes (*Bubalus bubalis*). *Indian Journal of Animal Science* 71: 248-250.

2. Satish K. Garg, R.P. Uppal and S.P. Verma (2001). Systemic availability following subcutaneous administration and *in vitro* plasma protein binding of gentamicin in goats (*Capra hircus*). *Journal of Veterinary Pharmacology and Toxicology*, **1**:25-29.
3. Satish K. Garg, M.A. Ayub Shah and K.M. Garg (2002). Tocolytic effect of selective beta₂ adrenoceptor agonists in isolated gravid uterus of goats (*Capra hircus*). *Journal of Veterinary Pharmacology and Toxicology*, **2**:82-85.
4. R.K. Sharma, H.C. Pant, M. Sabir and Satish K. Garg (2003). Concentrations of 5-hydroxytryptamine (serotonin) in placenta and uterus of buffaloes during pregnancy. *Indian Journal of Animal Science* **73**: 185-186.
5. Arpita Mohan and Satish K. Garg (2003). Disposition kinetics of ciprofloxacin following a single intravenous dose in calves. *Indian Journal of Pharmacology*, **35**:227-231.
6. Arpita Mohan and Satish K. Garg (2003). A simple and rapid fluorimetric assay method for estimation of ciprofloxacin in plasma. *Indian Journal of Animal Science* **73**: 765-766.
7. Yashwant Singh, Sandeep S. Kashyap, Jitender Kumar and Satish K. Garg (2003). Clinico-haematological observations in quails following short-term exposure to saline drinking water. *Indian Journal of Animal Science* **73**: 1006-1008.
8. Sandeep S. Kashyap, Jitender Kumar, Yashwant Singh and Satish K. Garg (2003). Effect of saline drinking water on feed consumption, water intake and egg production in quails. *Indian Journal of Poultry Science*, **38**(2): 170-172.
9. V. Kumar, R. Singh and H.S. Panwar (2003). Toxic potential of leaves of *Acacia leucohloea* (Raunja) during different seasons. *Journal of Veterinary Pharmacology and Toxicology*, **3**:87-89.
10. Satish K. Garg, Rajesh Katoch and P.P.S. Chauhan (2004). Evaluation of the efficacy of fenbendazole against natural gastrointestinal nematodiasis in goats (*Capra hircus*). *Small Ruminant Research*, **51**:97-100
11. Ashok Gaur, S.P.S. Saini, Satish K. Garg, R.K. Chaudhary and A.K. Srivastava (2004). Pharmacokinetics of ofloxacin after a single intravenous bolus dose in neonatal calves. *Journal of Veterinary Pharmacology and Therapeutics*, **27**:15-117
12. Satish K. Garg, K. M. Garg and M. Sabir (2004). Evaluation of tocolytic efficacy of selective beta₂ adrenoceptor agonists on buffalo (*Bubalus bubalis*) uterus. *Indian Journal of Experimental Biology*, **42**: 913-918.
13. K.M. Garg, Satish K. Garg and M. Sabir (2005). Pharmacological evaluation of phosphodiesterase inhibitors as potential tocolytic agents in buffaloes (*Bubalus bubalis*). *Indian Journal of Animal Sciences* **75**:61-62
14. Jitender Kumar, Satish K. Garg, Yashwant Singh and Sandeep S. Kashyap. (2005). Biochemical and pathomorphological alterations in quails following short-term exposure to saline water. *Toxicology International*, **12**(1):27-31.
15. Ashok Gaur, Satish K. Garg, and S.P.S Saini (2005). Comparative disposition kinetics of ofloxacin following a single intramuscular and subcutaneous administration in neonatal calves. *Journal of Veterinary Pharmacology and Therapeutics*, **28**:385-388.

PAPERS PRESENTED IN CONFERENCES :

1. M.A. Ayub Shah, Pradeep Takawale and Satish K. Garg (2001). Studies on *in vitro* protein binding of ofloxacin in sheep and goats. Souvenir, pp. 136-137.
2. Arpita Mohan and Satish K. Garg (2001). Pharmacokinetic profile of ofloxacin following a single intravenous administration in calves. Souvenir, pp. 137-138.
3. Satish K. Garg, A. Gaur, S.P.S. Saini, R.K. Chaudhary and A.K. Srivastava (2001). Disposition kinetics of ofloxacin in neonatal calves. pp. 139-140.
4. Pradeep Takawale, Satish K. Garg and M.A. Ayub Shah (2001). Disposition kinetics of ofloxacin in following a single intramuscular injection in sheep. pp. 140-142.

5. Pradeep Takawale, M.A. Ayub Shah and Satish K. Garg (2001). Pharmacokinetics of ofloxacin after a single intramuscular administration in goats. pp. 142-144.
¹⁻⁵Papers presented during Second Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology held at Gujarat Agricultural University, Sardar Krushinagar (December 20-22, 2001).
6. Arpita Mohan and Satish K. Garg (2002). Ofloxacin pharmacokinetics following a single intramuscular administration and *in-vitro* plasma protein binding in calves. pp. 20-21
7. A. Gaur, S.P.S. Saini, Satish K. Garg, R.K. Chaudhary and A.K. Srivastava (2002). Disposition kinetics following intramuscular administration and *in vitro* plasma protein binding of ofloxacin in neonatal calves. p. 21.
8. Pratishtha Sharma, S.P.S. Saini, Satish K. Garg, R.K. Chaudhary and A.K. Srivastava (2002). Pharmacokinetics of ofloxacin after a single intravenous bolus dose in buffalo calves. pp. 21-22.
9. M.A. Ayub Shah, Pradeep Takawale and Satish K. Garg (2002). Disposition kinetics of ofloxacin after a single subcutaneous injection in *Barbari* goats. pp. 23-24.
10. M.A. Ayub Shah, Satish K. Garg and Pradeep Takawale (2002). Pharmacokinetic disposition of ofloxacin after a single subcutaneous injection in sheep. pp. 29-30.
⁶⁻¹⁰Papers presented during 3rd Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology, held at G.B. Pant University of Agriculture and Technology, Pantnagar (October 24-26, 2002).
11. Pratishtha Sharma, M. S. Gill and Satish K. Garg (2005). Comparative disposition kinetics of ofloxacin after single intramuscular and subcutaneous administration in buffalo calves. *Compendium*:31.
12. K.M. Garg, Satish K. Garg and M. Sabir (2005). Evaluation of tocolytic potential of pitophenone- a non-specific smooth muscle relaxant in buffaloes. *Compendium*:100
13. Bharat Bhushan, Aarti Pathak, Vaibhav Mishra, Basanti Bist, Jitender Kumar and Satish K. Garg (2005). Antibacterial and antioxidant activity of a polyherbal formulation (Herbiotic-fs) in broiler chicks. *Compendium*: 100-101.
¹¹⁻¹³Papers presented during the 5th Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology, held at Madras Veterinary College, TANUVAS, Chennai (November 24-26, 2005).

GUEST/INVITED LECTURES DELIVERED IN CONFERENCES/SYMPOSIA/ TRAININGS

1. Satish K. Garg (2001). Oilfield pollutants- a challenge to our livestock. Winter School on "Advances in Clinical Toxicology with special reference to environmental and industrial toxicants" organized at Punjab Agricultural University, Ludhiana (October 16-Nov. 5, 2001).
2. Satish K. Garg (2001). Molecular mechanisms of antimicrobial resistance and regulatory concerns. *Second Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology*, held at Gujarat Agricultural University, Sardar Krushi Nagar (December 20-22, 2001).
3. Satish K. Garg (2002). New drug development and drug delivery systems in veterinary medicine – a challenge to the drug industry in new millennium. "National Seminar on Veterinary Drugs and Pharmaceuticals" sponsored by Department of Science and Technology, Govt. of India, held at National Academy of Agricultural Research and Management, Hyderabad (March 23-24, 2002).
4. Satish K. Garg (2002). Judicious use of chemotherapeutic agents in animal production and treatment. Summer school on "Advances in Hill Veterinary and Animal Husbandry Practices" organized at Himachal Pradesh Krishi Vishwavidyalaya, Palampur (April 10-30, 2002).
5. Satish K. Garg (2002). Environmental pollutants of Industrial origin – concern for animal health and reproduction. "CSIR Sponsored Orientation course on Industrial Toxicology" organized at Punjab Agricultural University, Ludhiana (September 9-30, 2002).
6. Satish K. Garg (2002). Industrial pollutants – a cause of concern for animal health and reproduction. 3rd Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology, held at G.B. Pant University of Agriculture and Technology, Pantnagar (October 24-26, 2002). *Advances in Veterinary Pharmacology and Toxicology*: 102-106.
7. Satish K. Garg (2003). Biomarkers: the tools for biomonitoring and drug development.

8. Satish K. Garg (2003). Mechanistic neurotoxicity of lead- signal transduction as the potential target.
 7-9 ICAR Winter School on "Recent approaches in risk evaluation, detoxification, toxicodynamics and therapeutic strategies with special reference to environmental and industrial toxicants organized at the Indian Veterinary Research Institute, Izatnagar (November 4-24, 2003)

EXTENSION ACTIVITIES :

Department is actively involved in all extension activities of the University including organization of Kissan melas and delivering scientific lectures for the benefit of farmers, ex-servicemen from Defence services, field veterinarians and extension workers. Through different programmes of Krishi Vigyan Kendra of the University, farmers were educated about the toxicity problems in animals and their management. Through another programme of imparting training in rearing of animals and poultry for the Ex-servicemen, visiting persons are given first hand and practical knowledge about the significance of some of the very common indigenous medicinal plants for treatment of common ailments of animals.

During the year 2005-06, under Assistance to States for Control of Animal Diseases (ASCAD) Programme of Govt. of India for training the field Veterinarians, Department arranged the following lectures/demonstrations :

NAME OF THE TRAINING	TOPIC	SPEAKER
Therapeutic management of toxicity in animals (Aug. 22-31, 2005)	Diagnosis of poisoning in animals and general principles of treatment	Dr. Satish K. Garg
	HCN poisoning in livestock, its treatment and control measures	Dr. H.S. Panwar
	Diagnosis and clinico-therapeutic management of agrochemicals poisoning in animals	Dr. Satish K. Garg
Modern diagnostic methods and innovative techniques (Sept. 12-21, 2005)	Modern diagnostic methods and innovative techniques for HCN poisoning in livestock	Dr. H.S. Panwar
	Simple and rapid methods for detection of some common toxicants responsible for toxicity in animals	Dr. Satish K. Garg

OTHER ACTIVITIES :

- ❖ Dr. Satish Kumar Garg, Professor and Head performed the additional duties of Estate Officer w.e.f. Jan. 2002 to Aug. 2002 and Establishment Officer of the University w.e.f. Sept. 2002 to June 2005.
- ❖ Dr. K.M. Garg, Professor performed the additional duty of Establishment Officer of the University w.e.f. Jan. 2002 to Sept. 2002.
- ❖ Dr. S.K. Garg, Professor and Head edited the souvenir of UPLDB sponsored National Seminar in March 2004.
- ❖ Dr. H. S. Panwar, Professor is performing the additional duties Dean PGS w.e.f. 28-04-2004 and the Director of Madhuri Kund Farm w.e.f. 20-06-2005.
- ❖ Dr. Satish Kumar Garg, Professor and Head is the Editor of six monthly University News Letter and annual University Magazine "Srajan".



VETERINARY PHYSIOLOGY

The department was established with the inception of the College for undergraduate teaching in 1947. The postgraduate programme in Physiology was started in 1956. The teachers of this department have been rewarded with prestigious "Rafi Ahmed Kidwai Award" and "Jawahar Lal Nehru Award" for their outstanding research contributions. The department also contributed three chapters on Physiology of Buffalo in the books entitled, "The improvement of livestock production in warm climate" edited by Professor R. E. McDowell "Husbandry and Health of Buffalo", edited by Dr. W. Ross Cockrill and the ICAR book, "Research in Animal Production". Eleven research projects financed by I.C.A.R., P. L. - 480 and U.P. Govt. have been satisfactorily carried out. Different aspects of research in semen biology including semen preservation at room temperature, refrigerator temperature and deep freezing, rumen physiology, biochemical polymorphism, water and electrolyte metabolism, hormones profile, growth, reproduction and superovulation studies have been carried out in the department. A Barbari goat farm is also being managed by the department.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. M. P. Agrawal	MVSc PhD	Professor and Head
Dr. D. K. Johari	MVSc PhD	Professor
Dr. Sarvajeet Yadav	MVSc PhD	Asso. Professor
Dr. Jitender Kumar	MVSc PhD	Asst. Professor

TEACHING PROGRAMMES :

Department is involved in teaching Veterinary Physiology to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered at undergraduate level :

I Semester	VPY 111 (Veterinary Physiology - I)	2+1
II Semester	VPY 121 (Veterinary Physiology - II)	2+1
III Semester	VPY 211 (Veterinary Physiology - III)	2+1
IV Semester	VPY 221 (Veterinary Physiology - IV)	1+1

MVSc Programme

Two-year MVSc degree programme is continuing in traditional/annual system and consists of one-year course programme during the MVSc (Previous). Students take up their research work and submit the thesis during the final year. Various aspects of Veterinary Physiology are taught as per the details given below :

MVSc (Previous)

Paper I	(Physiology of tissue elements and growth)
Paper II	(Physiology of digestion, climatic physiology & animal behaviour)
Paper III	(Endocrinology, reproduction, lactation & radiobiology)

MVSc (Final)

Research work and submission of thesis.

PhD Programme

PhD degree programme is without any course work and award of degree is by research work and submission of thesis.

RESEARCH PROGRAMME :

Department has done pioneer research work in semen preservation and cryopreservation. Large number of semen diluents in combination with different antibiotics vitamins, amino acids etc. have been studied and evaluated. Studies on characterization and follicular dynamics of buffalo, sheep and goat ovary, freezability of Bhadawari buffalo bull semen in EY-Tris basic diluents and effect of glutamic acid and defatted cow milk in EY-Tris is in progress. Hypo osmotic swelling test to test the *in-vitro* fertility after thawing the semen, microbial load during collection, semen processing for cryopreservation and after thawing has also been taken up.

The off season breeding of buffaloes project was undertaken by the department and it was observed that there is no quiescence of reproductive rhythm during summer as the fertility level obtained in the project were similar to normal breeding season (autumn). The symptoms of oestrus during summer were depressed.

Influence of exogenous melatonin administration on haemato-biochemical indices, oxidative stress, reproductive and hormonal status, enzymes and immunological profile in goats and sheep have been studied.

CONTRIBUTIONS AND ACHIEVEMENTS :

- ❖ Dr. Sarvajeet Yadav, Organized one-day seminar on "Infertility in cattle, problems and its solution in field condition on 5th Jan. 2002 in the University which was sponsored by veterinary council of U. P.
- ❖ Dr. Sarvajeet Yadav - Co-editor of Pashudhan Patrika (2002), Published by the University.
- ❖ Dr. Sarvajeet Yadav - Worked as Editor of the Souvenir released on FMD Annual Meet (2003).
- ❖ Dr. Sarvajeet Yadav, acted as core committee member in organizing two days National seminar on selection of breeding bulls, frozen semen production and its certification at national level, organized by U.P.L.D.B., Dept. of A.H. & Dairying, Govt. of India and Veterinary University Mathura, (Mar. 11-12, 2004)
- ❖ Dr. Jitender Kumar - Associate Editor of Six monthly University News Letter and Annual Magazine, "Srajan", A bilingual yearly publication of the University.
- ❖ Dr. Sarvajeet Yadav, contributed six articles in the "Training Manual on Semen Technology and Fertility Management in cattle and buffalo" a University Publication.
- ❖ Dr. M. P. Agrawal, contributed one article on "Physiology of male reproduction" in the "Training Manual on Semen Technology and Fertility Management in cattle and buffalo" a University Publication.
- ❖ Dr. Sarvajeet Yadav - Editor of "Training Manual on Semen Technology and Fertility Management in cattle and buffalo" a University Publication.
- ❖ Dr. M. P. Agrawal presented lead paper in National symposium on "Application of nuclear and non nuclear techniques in detection of residues in food and feed" held at Madras Veterinary College, Chennai (Mar. 18-19, 2005)
- ❖ Dr. Jitender Kumar presented lead paper in National symposium on "Application of nuclear and non nuclear techniques in detection of residues in food and feed" held at Madras Veterinary College, Chennai (Mar. 18-19, 2005)
- ❖ Dr. Sarvajeet Yadav - Editor of the text entitled Semen Technology and Fertility Management in cattle and buffalo" a University Publication.
- ❖ Dr. Jitender Kumar, nominated as Member of Editorial Board, Indian Journal of Animal Physiology, Official Publication of Society of Animal Physiologists of India.

TRAINING ATTENDED

Name of Participant	Date	Name of Training/Institute
Dr. Jitender Kumar	Dec. 22, 2001 - Jan. 11, 2002	Winter school on "Application of Embryo Biotechnology for conservation and multiplication of Elite Animals" held at G.B. Pant University of Agriculture & Technology, Pantnagar
Dr. Sarvajeet Yadav	Aug. 21, - Aug. 27, 2003	Training Programme on "Agricultural research prioritization technique" held at NAARM, Hyderabad
Dr. Jitender Kumar	Dec. 8, - Dec. 28, 2004	Refresher course on "Computer education for agriculture scientists" held at CCS, HAU, Hissar
Dr. Jitender Kumar	Jul. 14, - Aug. 3, 2005	Summer school on "Quality Assurance in Veterinary Education in Relevance with Globalization" held at Madras Veterinary College, Chennai
Dr. Jitender Kumar	Feb. 7, - Feb. 28, 2006	Training on "DNA based diagnostics" held at College of Veterinary Science, Hissar

LIST OF THE POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES Ph.D.

S.No.	Name of Student	Year	Thesis Title	Guide
1.	Dr. Jitender Kumar	2004	Seasonal effect of exogenous melatonin administration on some haemato-biochemical parameters, reproductive & thyroid status in sheep.	Dr. M. P. Agrawal

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. Devender Singh	2002	A study on epididymal and ejaculated buck semen.	Dr. Sarvajeet Yadav
2.	Dr. Eshwaree Narain	2003	Assessment of different serum supplementation on <i>in-vitro</i> maturation and fertilization of pre pubertal goat oocytes.	Dr. D. K. Johari Dr. S. D. Kharche
3.	Dr. Aarti Pathak	2005	Evaluation of pineal peptide profile and influence of melatonin administration on oxidative stress indices and certain biochemical parameters in cyclic Barbari goats.	Dr. M. P. Agrawal Dr. Jitender Kumar
4.	Dr. Vaibhav Misra	2005	Comparative study on some physiologically important biochemical parameters and leucocytic pictures in cerebrospinal fluid and blood of Barbari goats.	Dr. D. K. Johari Dr. Jitender Kumar
5.	Dr. Vasundhara Dawra	2005	Freezability of Bhadawari buffalo semen in different diluents.	Dr. Sarvajeet Yadav

PUBLICATIONS :

1. Yadav, S. and Sattar A, (2001) A comparative study on pellets and straw freezing of ram spermatozoa Indian Vet. Med. 24 : 299-302.
2. Singh Y.; Madan A. K.; Kumar, J. and Agarwal M.P. (2001) Studies on the haematological and biochemical profile of Kathiawari Yearlings. Centaur 18 (1) : 17-20.
3. Kumar, J.; Singh, Y. and Madan, A.K. (2001) Foaling induced alterations in haematological and biochemical profile in Kathiawari mares. Cheiron 30 (5&6) : 161-163.
4. Kumar, J.; Singh, Y.; Madan, A.K.; Chandra, R. and Rahim, A. (2001) Changes in blood biochemical profile after short term exercise in Kathiawari horses. Indian J. Vet. Res. 10 (2) : 50-54.
5. Kumar, J.; Madan, A.K.; Singh, Y.; Rahim, A.; and Chandra, R. (2001) Studies on blood biochemical profile of Kathiawari horses. Indian Vet. Med. J. 25 (4) : 337-339.
6. Singh, Y.; Kumar, J.; Madan, A.K. and Agarwal, M.P. (2002) Exercise induced physiological and haematological changes in Kathiawari horses. Indian Vet. Med. J. 26 (1) : 51-52.
7. Madan A.K.; Kumar, J.; Singh Y. and Agarwal, M.P. (2002) Biochemical alteration in Kathiawari foals during early stage of growth. Centaur 18 (4) : 66-69.
8. Madan A.K.; Kumar, J.; Singh Y. and Agarwal, M.P. (2002) Sequential alterations in some of the haemato-biochemical indices during post foaling period in Kathiawari mares. Indian J. Anim. Sci. 72 (8) : 640-642.
9. Yadav, S. (2002) How to make goat husbandry economical ? Pashudhan Patrika, Vet. University, Mathura
10. Singh Y.; Madan A. K.; Kumar, J. and Goel, R. (2003) Physiological and haematological values of Kathiawari foals during postnatal development. Indian J. Anim. Res. 37 (1) : 14-18.
11. Singh Y.; Kashyap, S.S.; Kumar, J. and Garg, S.K. (2003) Clinico-haematological observations in quails following short-term exposure to saline drinking water. Indian J. Anim. Sci. 73 (9) : 1006-1008.
12. Kashyap, S.S.; Kumar, J. Singh Y. and Garg, S.K. (2003) Effect of saline drinking water on laying performance of Japanese quails (*Coturnix coturnix japonica*) following short-term exposure to. Indian J. Poul. Sci. 38 (2) : 170-172.
13. Kumar, J.; Singh, Y.; Madan, A.K., and Goel, R. (2003) Age associated biochemical and enzymatic alterations in Kathiawari horses. Centaur 20 (1) : 6-9.
14. Pandey M.D. and Yadav S. (2004) "Off season breeding of buffaloes a note with points to ponder". National seminar on selection of breeding bulls, frozen semen production & its certification at national level, organised by U.P.LDB, Dept. of A.H.& Dairing, Govt of India Veterinary university Mathura. (Mar. 11-12, 2004) pp. 139-141.
15. Yadav S., Johari D. K. and Pandey M. D. (2004) "Freezability of buffalo semen". National seminar on selection of breeding bulls, frozen semen production & its certification at national level, organized by U.P. LDB, Dept. of A.H. & Dairing, Govt of India, Veterinary University Mathura. (11-12 March, 2004) P.p. 54-58.
16. Kumar, J., Garg, S.K.; Kashyap, S.S.; Singh Y. and Mishra, S.K. (2005) Biochemical and patho-morphological alteration in quails (*Coturnix coturnix japonica*) after short-term exposure to saline drinking water. Toxicol. Internat. 12 (1) : 27-31.

ABSTRACTS PRESENTED IN CONFERENCES/SYMPOSIA :

1. S.Yadav, P. Mishra and D. K. Johari (2002). A comparative study on yield and quality of oocytes, from peripheral and cortical stroma of buffalo ovaries. 9th International Congress on biotechnology in Animal Reproduction. Management of farm animal; reproduction fertility improvement and advanced technologies. TANUVAS, Chennai. (Dec. 2-4, 2002)
 2. P. K. Singh, Jitender Kumar and M. P. Agrawal (2003). Influence of exogenous melatonin on reproductive and thyroid hormones in female Barbari goats. XIIIth Annual Conference of Society of Animal Physiologist of India, NDRI, Karnal (Jan. 6-7, 2003)
 3. S. Yadav, D. K. Johari and M. D. Padey (2003). Freezability and transaminase leakage from Bhadawari buffalo spermatozoa in different extenders.
 4. P. Mishra, S. Yadav and D. K. Johari (2003). Surface follicular population and oocyte retrieval from buffalo ovaries.
- ³⁴ Papers presented at 4th Asian buffalo congress on buffaloes for food security and rural employment at New-Delhi India (Feb. 25-28, 2003)

5. S. Yadav and P. Mishra (2004) A study on surface follicular population, recovery and quality of oocytes of goat ovaries at different stages of oestrus cycle.
6. D. K. Singh and S. Yadav (2004) Preservability of epididymal and vas deferens spermatozoa at 4°C. ⁵⁻⁸ Papers presented at National seminar on emerging biotechnological frontiers in animal health and production held at College of Veterinary Science and Animal Husbandry, GAU, Sardarkrushinagar-Gujarat. (Feb. 26-27, 2004)
7. Jitender Kumar, M.P. Agrawal & D.K. Johari (2005) Seasonal effect of sub cutaneous exogenous melatonin administration on some blood metabolites in sheep. XIVth Annual Conference of Society of Animal Physiologist of India and National symposium on "Recent advances in cryopreservation of livestock germ plasm", College of Veterinary Science and A.H., Durg (Jan. 28-29, 2005)
8. R.K. Misra, Jitender Kumar and P.K. Shukla (2005) Haemato-biochemical profiles of broilers following shortterm feeding of Fenvelerate. (Feb. 2-4, 2005) pp 143
9. R.K. Misra, Jitender Kumar and P.K. Shukla (2005) Effect of methyl parathion on haematological and serum biochemical attributes in broilers. (Feb. 2-4, 2005) pp 144
⁸⁻⁹ Papers presented during 21st IPSACON-2005, held at Project Directorate on Poultry, Rajendranagar, Hyderabad (Feb. 2-4, 2005).
10. S. Yadav and V. Dawra (2005) A comparative study on pellets and straw freezing of buck semen.
11. P. Mishra and S. Yadav (2005) A comparative study on methods of oocyte collection and quality from sheep ovary
12. V. Dawra and S. Yadav (2005) Freezability of Bhadawari buffalo semen.
¹⁰⁻¹² Papers presented at National symposium organized by society for conservation of domestic animal biodiversity. (SOC DAB) NBAGR, KARNAL (Feb. 10-11, 2005)
13. Arti Pathak, Vaibhav Misra and Jitender Kumar (2005) Ascorbic Acid Concentration during different season in Barbari Goats. in conference on " National Live Stock Breeding policy " organized by Indian society of Animal Genetics and Breeding at Central institute of research on Goat Makhdoom, Farah Mathura (Mar. 8-10, 2005)
14. Bharat Bhushan, Aarti Pathak, Vaibhav Mishra, Basanti Bist, Jitender Kumar and Satish K. Garg (2005). Antibacterial and antioxidant activity of a polyherbal formulation (Herbiotic-fs) in broiler chicks. *Compendium*: 100-101. 5th Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology, held at Madras Veterinary College, TANUVAS, Chennai (Nov. 24-26, 2005).
15. Aarti Pathak, Jitender Kumar, Vaibhav Misra and M.P. Agrawal (2006) Change in oxidative stress indices serum enzymes and leucocyte picture of Barbari goats treated with exogenous melatonin.
16. P. K. Singh, Jitender Kumar and M. P. Agrawal (2006). Effect of exogenous melatonin administration on some biochemical indices in Barbari goats.
¹⁵⁻¹⁶ Papers presented at the XVth Annual Conference of Society of Animal Physiologist of India, at Bombay Veterinary College, Mumbai (Jan. 5-7, 2006)
17. P. Mishra, S. Kumar and S. Yadav (2006) A comparative study on yield and quality of oocytes, from peripheral and cortical stroma of sheep ovaries.
18. E.N. Yadav, S.D. Kharche, S. Yadav (2006) A comparative study on IVM and IVF between pre-pubertal and pubertal goat oocytes.
19. P. Mishra, S. Kumar and S. Yadav (2006) A comparative study on yield and quality of oocytes from different phases of estrus cycle in sheep.
20. P. Mishra, S. Kumar and S. Yadav (2006) A comparative study on yield and quality of oocytes of ovary with corpus luteum or without corpus luteum in sheep.
¹⁷⁻²⁰ Papers presented at National symposium on conservation and improvement of animal genetic resources under low input system: challenges and strategies. Organised by Society for Conservation of Domestic Animal Biodiversity. (SOC DAB) and NBAGR. Karnal (Feb. 9-10, 2006)

21. Jitender Kumar, Arti Pathak, Vaibhav Misra, Yashwant Singh and M. P. Agrawal (2005) Effect of exogenous melatonin treatment on wool production and its quality in sheep in National Symposium on "Technological Interventions for Livestock Improvement" organized by Indian society for Sheep & Goat production & utilization and Indian association of animal production at National Academy of Agricultural Sciences, New Delhi (Feb. 17-19, 2006)

LIST OF PRACTICAL MANUALS PUBLISHED :

1. Practical Manual (VPY-111)
2. Practical Manual (VPY-121)

OTHER ACTIVITIES :

- ❖ Dr. M. P. Agrawal, Professor performing the additional duty of Chief Personal Officer.
- ❖ Dr. D. K. Johri, Professor performed the additional duty of Hostel Warden (Kissan-Hostel) upto Feb. 2003.
- ❖ Dr. Sarvajeet Yadav, Assoc. Professor, performed the additional duty of Hostel Warden (Nehru-Hostel) upto Jan. 2004.
- ❖ Dr. Jitender Kumar, Asst. Professor, performing the additional duty of Hostel Warden (S. N. Hostel) w.e.f. Nov. 2002.
- ❖ Dr. Sarvajeet Yadav, Assoc. Professor, performing the additional duty of Additional Director of Research w.e.f. Sept. 2002.
- ❖ Dr. Jitender Kumar, Asst. Professor, performing the additional duty of Co-ordinator Printing & Publication Division w.e.f. July 2003.
- ❖ Dr. Jitender Kumar, Asst. Professor, official representative of the university during 5th and 7th All India Inter State Agricultural Universities Youth Festival held at Jodhpur and Bhuvneshwar respectively.



VETERINARY PUBLIC HEALTH

The Brucellosis research scheme was started in this college in 1956 which was later upgraded to Veterinary Public Health department in 1988. It is interesting to note that the work undertaken by this department has brought down the incidence of Brucellosis to 1-2 % and occurrence of abortions at the farms are much reduced. The current prevalence of the disease in Uttar Pradesh is 1.58 % in cattle and buffaloes, 0.74 % in cow and buffaloes bulls, 1.19 % in bull calves, 1.27 % in sheep and goats and 0.55 % in pigs. The department helped a lot in reducing the incidence of Brucellosis at live stock farms of Uttar Pradesh. This department started M.V.Sc. degree programme in the year 1993. 21 students have already obtained the degree of M.V.Sc. From 1997 this department is also involved in teaching undergraduate students during 5th, 6th and 7th semesters.

FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. Basanti Bist	MVSc PhD	Asso. Professor & Incharge

TEACHING PROGRAMMES :

Department is involved in teaching Veterinary Public Health to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc & AH Programme

Following courses are being offered/taught at undergraduate level :

V Semester	VPH 311 (Milk Hygiene and Public Health)	1+1
VI Semester	VPH 321 (Meat Hygiene and Public Health)	1+1
VII Semester	VPH 411 (Zoonoses and Human Health)	1+1
VII Semester	VPH 412 (Environment Hygiene)	1+1

MVSc Programme

The Post-Graduate Programme (MVSc) is two-year degree programme which consists of one-year course work during MVSc (Previous). The final year, students take up their research work and submit the thesis. Various aspects of Veterinary Public Health are taught as per the details given below :

MVSc (Previous)

Paper I	(Zoonosis)
Paper II	(Food Born Diseases & Food Hygiene)
Paper III	(Public Health Administrations & Environmental Hygiene)

MVSc (Final)

Research work and submission of thesis.

PhD Programme

PhD degree programme is without any course work. Award of degree is only by research work and submission of thesis.

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES :

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. Chandra Shekhar	2002	Studies on the bacterial profile of buffalo meat and edible offal and its public health significance.	Dr. D. D. Lalwani Dr. Basanti Bist
2.	Dr. Udit Jain	2002	Assessment of physico-chemical and microbiological qualities of drinking water supplies in Mathura.	Dr. D. D. Lalwani Dr. Basanti Bist
3.	Dr. Deepak Singhal	2002	Studies on microbial contamination of raw milk & milk products in Mathura city.	Dr. D. D. Lalwani Dr. Basanti Bist
4.	Dr. Sandeep Singh	2002	Seroprevalence of brucellosis in animal of goshalas of Mathura district and its public health significance.	Dr. D. D. Lalwani Dr. Basanti Bist
5.	Dr. Subhash Babu	2002	Seroprevalence of brucellosis in cattle/ buffaloes in certain areas of Mathura distt. and its public health significance.	Dr. D. D. Lalwani Dr. Basanti Bist
6.	Dr. Vikas Kumar	2003	Seroprevalence of brucellosis in cattle/ buffaloes in certain areas of Gorakhpur District and its public health significance.	Dr. Basanti Bist

7.	Dr. Anand Kumar	2003	Studies on microbial contamination of raw milk and peda in Mathura city.	Dr. Basanti Bist
8.	Dr. Himanshu Kumar	2003	Studies on bacterial profile of goat/pig and poultry meat and its public health Significance.	Dr. Basanti Bist
9.	Dr. Indu Sharma	2004	Bacterial profile of <i>Salmonella</i> and <i>E. coli</i> in goat, pig and poultry meat and its public health significance.	Dr. Basanti Bist
10.	Dr. Sushrut Arora	2004	Comparison of ELISA and PCR vis-a-vis cultural methods for detecting <i>Aeromonas</i> spp. in foods of animal origin.	Dr. Basanti Bist Dr. R. K. Agrawal
11.	Dr. Vijay Kumar	2005	Studies on bacterial profile of goat meat and its public health significance.	Dr. Basanti Bist
12.	Dr. L. N. Gupta	2005	Bacterial profile of <i>Salmonella</i> & <i>E. coli</i> in fish meat and its public health significance.	Dr. Basanti Bist

PUBLICATIONS :

- Kumar, H. and Bist, B. (2003) Quantitative Bacterial Contamination of meat from retail shop.
- Kumar, H. and Bist, B. (2003) Qualitative Bacterial Contamination of meat from retail shop.
¹⁻² presented in National Symposium on impact of globalization on Indian meat industry at Rajiv Gandhi College of Veterinary And Animal Sciences Kurumbapet Pondicherry. (Dec. 11-12, 2003)
- Mishra, V.K.; Bist, B. and Arora, S. (2004) Seroprevalence of brucellosis in human from various region of Gorakhpur district. *Immunopathology* 6 (5-1) : 137
- Singh, S.K.; Bist, B. and Chauhan, R.S. (2004) Seroprevalence of brucellosis in a gaushala of Mathura district and its public health significance. *J. Immunol, Immunopathol* 6 (5-1) : 131-132.
- Jain, U. and Bist, B. (2004) Assessment of physical qualities of drinking water supplies in Mathura district. Presented at 57th, National seminar on "Opportunities and challenges for sustainable live-stock production" CVSC & AH Kumarganj (Feb. 14, 2004)
- निधी गौतम, दिव्या नायक, स्मरिका सिंह, ए० के० भाटिया, बी० विष्ट, हिमांशु कुमार एवं पुनीत वासने (2004) मथुरा शहर के पानी में जीवाणु - एक अध्ययन पृ० सं० - 150
- उदित जैन एवं बसन्ती विष्ट (2004) मथुरा जिले के विभिन्न स्रोतों से प्राप्त पेय जल आपूर्ति की जीवाणु परीक्षण द्वारा गुणवत्ता की जाँच पृ० सं० - 160
⁶⁻⁷ स्मरिका तृतीय अखिल भारतीय विज्ञान सम्मेलन, राष्ट्रीय भौतिक प्रयोगशाला - दिल्ली (19-21 फरवरी 2004)
- Shekhar, C.; Lalwani, D.D.; Bist, B. and Rajani, K.B. (2004) Prevalence of food poisoning causing bacteria in fresh buffalo meat & edible offal & public health significance. *Indian Veterinary Medical Journal*. 28 (2) : 115-116
- Shekhar, C.; Lalwani, D.D.; Bist, B. and Rajani, K.B. (2005) Antibiotic/drug sensitivity pattern of bacteria isolated from slaughtered buffalo meat and its offal. *Indian Vet. Med. J.* 29 : 46-48
- Mishra, V. K.; Arora, Sushrat & Bist, Basanti (2005) Seroprevalence of Brucellosis among cattle and Buffalo of Gorkhpur District of Uttar Pradesh. *J. of Veterinary Public Health*. 3 (1) : 67-70
- Bhushan, B.; Pathak, A.; Mishra, V.; Bist, B.; Kumar, J. and Garg, S.K. (2005). Antibacterial and antioxidant activity of a polyherbal formulation (Herbiotic-fs) in broiler chicks. Papers presented during the 5th Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology, held at Madras Veterinary College, TANUVAS, Chennai (November 24-26, 2005) pp 100-101

- 12 Arora, S.; Agrawal, R.K.; Bist, B. (2006) Comparison of ELISA and PCR visa-vis cultural Methods for detecting *Aeromonas spp.* in food of animal orogin International Journal of food microbiology - 106 : 177-183

LIST OF PRACTICAL MANUALS PUBLISHED :

1. Milk Hygiene (VPH-311)
2. Meat Hygiene (VPH-312)
3. Enviornmental Hygiene (VPH-412)



VETERINARY SURGERY AND RADIOLOGY

The department of Surgery & Radiology was established in 1950-51 to impart training to undergraduate students of BVSc & AH. Postgraduate studies leading to award of MVSc and PhD degree began in the year 1968 and 1978, respectively.

The department has been efficiently producing technical manpower as veterinary graduates and post-graduates to cater to the needs of society and to ameliorate the sufferings of livestock. So far 55 students have obtained the MVSc degree and 6 have obtained PhD degree from this department.

The main thrust of research is to solve clinical problems of productive farm animals and companion animals. The emphasis is on surgico-clinical management of hamstring rupture, arthritis, horn cancer, frontal sinusitis, radial paralysis, affections of salivary glands, hernias, abomasal displacement, upward fixation of patella, obstructive bovine urolithiasis, recurrent utero-vaginal prolapse, rectal prolapse, neonatal bovine anaesthesia, wound healing, small and large ruminant anaesthesia, canine and equine anaesthesia, small ruminant laparoscopy, and acupucture.

PRESENT FACULTY POSITION :

NAME OF THE TEACHER	QUALIFICATIONS	DESIGNATION
Dr. Bharat Singh	MVSc PhD	Asso. Professor & Incharge
Dr. R. P. Panday	MVSc PhD	Asso. Professor

TEACHING PROGRAMMES :

Department is involved in teaching Surgery and Radiology to undergraduate (BVSc&AH) and Post-graduate (MVSc and PhD) students.

BVSc&AH Programme

Following courses are being offered/taught at undergraduate level :

VII Semester	VSR 411 (General Surgery & Anaesthesia)	2+1
VIII Semester	VSR 421 (Radiology & Clinical Surgery - I)	2+0
VIII Semester	VSR 422 (Radiology & Clinical Surgery - I Clinics)	0+2
IX Semester	VSR 511 (Radiology & Clinical Surgery - II & Lameness)	2+0
IX Semester	VSR 512 (Radiology & Clinical Surgery - II & Lameness Clinics)	2+0

MVSc Programme

Two-year MVSc degree programme consists of one-year course programme during the MVSc (Previous). During the final year, students take up their research work and submit the thesis. Various aspects of Surgery and Radiology are taught as per the details given below :

MVSc (Previous)

- Paper I General Surgery & Anasthesiology
- Paper II Regional Surgery
- Paper III Veterinery Radiology & Surgery of Locomotory System

MVSc (Final)

Research work and submission of thesis.

PhD Programme

PhD degree programme is in the traditional system without any course work and award of degree is only by evaluation of research work and submission of thesis.

FACILITIES AVAILABLE :

Facilities for conducting majority of the surgical operations on various animal species are present in the department. The department is well equipped for diagnostic radiological work, cardiography and ultrasonography apart from routine diagnostic and surgical instruments.

CONTRIBUTIONS AND ACHIEVEMENTS :

- ❖ Dr. Bharat Singh - Editor of official journal of UP chapter of ISVS.
- ❖ Dr. Bharat Singh presented a lead paper at Inaugural convention of UP Chapter of ISVS and Symposium at Lucknow.
- ❖ Dr. Bharat Singh presented a lead paper at Inaugural congress of Indian Society for Advancement in Canine Practice and National Symposium on Recent Trends in Canine Practice at Lucknow
- ❖ Dr. R. P. Pandey delivered lecture during ASCAD Training Programme for field veterinarians on 'Snake bite in domestic animals'.
- ❖ Dr. R.P.Pandey delivered series of lectures on relationship of bovine lameness and fertility

PARTICIPATION IN CONFERENCES / SEMINARS :

- 1) Dr. Bharat Singh - Inaugural convention of UP Chapter of ISVS and Symposium held at Lucknow. (Nov. 2, 2003)
- 2) Dr. Bharat Singh - Inagural Congress of Indian Society for Advancement in Canine Practice and National Symposium on Recent Trends in Canine Practice. (Apr. 8-9, 2004)
- 3) Dr. R. P. Panday - 1st Small Animal Endoscopy Workshop held at Delhi. (Nov. 7, 2005)

PUBLICATIONS :

- 1 Malik, V., Kumar, D., Sheshman, Pandey, R. P. and Singh, B. (2005) Inguinal hysterocele in bitch – a case report. Indian Journal of Veterinary Surgery, 26(1) 59
- 2 Mishra, K.K., Singh, B. and Pandey, R. P. (2003) Cystorrhaphy by right posterior flank approach in bullock. Indian J. Vet. Surg. 24(1):60
- 3 Singh, R., Mishra, K.K., Pandey, R.P., Srivastava, A. K. and Singh, B. (2003) Squamous cell carcinoma of vulva in a mare. Indian J. Vet. Surg. 24 (1) : 67
- 4 Singh, N. K., Pandey, R. P. and Singh, B. (2003) A note on propofol anaesthesia in sheep. Indian J. Vet. Surg. 24(2):106
- 5 Butola, V. and Singh, B. (2003). Physiological and clinical effects of midazolam and ketamine in dog: An experimental study. Indian J. Vet. Surg.24 (2) .95-96.
- 6 Misra, K.K., Pandey, R.P. and Singh, B. (2003). Atresia ani - surgical correction in different animals. The Blue Cross Book .20: 26.28

- 7 Singh, N.K., Singh, R., Misra, K.K., Pandey, R.P. and Singh, B. (2003). Subtotal Penectomy in a dog. The Blue Cross Book. 20: 40 - 41.
- 8 Butola, V. and Singh, B. (2003). Haemato-biochemical effects of midazolam and ketamine anaesthesia in dogs. Indian J. Vet. Surg. 24(1): 44 - 45.
- 9 Ruhela, R.K. and Singh, B. (2002). Therapeutic evaluation of electroacupuncture in induced aseptic gonitis in dogs. M.V.Sc. Thesis abstract, Indian J. Vet. Surg. 23(2): 91
- 10 Mashesh, Raj and Singh, B. 2002. Tranquilo - sedation with xylazine and midazolam in buffalo calves. M.V.Sc. Thesis (2000); Abstract, Indian J. Vet. Surg., 23(1) : 15.
- 11 Butola, V. and Singh, B. 2002. Studies on midazolam, xylazine and ketamine anaesthesia in dogs. M.V.Sc. Thesis (2000); Abstract, Indian J. Vet. Surg., 22(1): 60.
- 12 Pandey, R.P. (2002) Rhinotomy in dog. Intas-Polivet Vol.III (2002) No.2, pp.300-302

POST-GRADUATE STUDENTS WHO HAVE BEEN AWARDED DEGREES :

M.V.Sc.

S.No.	Name of Student	Year	Thesis Title	Guide/Co-Guide
1.	Dr. Vivek Malik	2005	Studies on ketamine alone and in combination with diazepam, midazolam and xylazine for induction of general anaesthesia in butorphenol-xylazine premedicated horses	Dr. Bharat Singh
2.	Dr. Sheshman	2005	Studies on bupivacaine, xylazine, ketamine hydrochloride and their combinations for lumbosacral anaesthesia in dogs	Dr. Bharat Singh
3.	Dr. Raghvendra Singh	2002	Studies on the induced infectious arthritis in buffalo calves and its management	Dr. Bharat Singh
4.	Dr. Krishan Kr. Mishra	2002	Evaluation of various approaches for cystorrhaphy, normograde indwelling catheterization and herbal treatment in buffalo calves	Dr. Bharat Singh
5.	Dr. Rajneesh Kumar	2002	Clinico-experimental studies on reconstructive surgery for resected achilles tendon in sheep	Dr. R. P. Pandey Dr. Ajay Prakash
6.	Dr. Narendra Kumar	2002	Clinico-experimental studies on propofol and ketamine anaesthesia in goats	Dr. R. P. Pandey
7.	Dr. S. K. Verma	2001	Studies on epidural effect of lignocaine hydrochloride, xylazine hydrochloride, ketamine hydrochloride and their combination in buffalo calves	Dr. Bharat Singh
8.	Dr. Ram Kishore Ruhela	2001	Therapeutic evaluation of electroacupuncture in induced aseptic gonitis in dogs	Dr. Bharat Singh

TRAININGS ATTENDED :

Name of Participant	Date	Name of Training/Institute
Dr. R. P. Pandey	July. 10-30, 2002	"Instructional Strategies for Effective Learning Teaching in Veterinary Education" at GBPUA&T, Pantnagar

BOOKS/MONOGRAPHS PREPARED/PUBLISHED :

1. Dr. R. P. Pandey - Co-editor of "Srajan", A bilingual yearly publication by the University.
2. Dr. R. P. Pandey - Co-editor of "Training Manual on Semen Technology and Fertility Management" a University Publication.
3. Dr. R. P. Pandey - Co-aeditor of the text entitled 'Semen Technology and Fertility Management'.



In addition to the above mentioned departments, College is having the following independent divisions/sections :

AGRICULTURE AND FODDER CROPS

This Section was established in the College in the year 1965 with the objective of imparting basic education to veterinary students in the field of production of green fodder and animal feed technology. After the introduction of VCI course-curriculum, teachers of this Section are involved in teaching the course of Fodder Production and Grass Land Management (LPM 112) to BVSc. and AH students. Presently, Dr. S. K. Sharma, Associate Professor is the Officer In-charge of this Section.

PASTURE AND FORAGE RESEARCH

Importance of low cost feeding in animal husbandry practices is well known to all of us. Therefore, for evolving better, balanced and cheaper ration for animals, this Section was established in the College in 1964 with the main emphasis on production and propagation of different types of grasses, fodder-crops and non-conventional source of feeds and fodder including agricultural by-products. Through extension activities, farmers of the nearby areas were encouraged to grow some of these grasses for their animals. The Scientists of this Section also conducted research on feeding of plant and crop wastes by enriching them with urea and molasses for feeding the animals during the periods of green fodder scarcity. Presently, Dr. V. P. Pathak, Professor is the Officer In-charge of the Section.

DISTRICT DAIRY DEMONSTRATION FARM

District Dairy Demonstration Farm (DDD Farm) was established in Veterinary College in the year 1947 with the objective of producing clean and hygienic milk for the students and staff of the College and supplying good quality and pedigreed bulls and calves to farmers. The farm is maintaining pure Haryana cows, Haryana X Friesian cross cows and Murrah buffaloes and their male and female calves. The milk is supplied to students by the University at subsidized rates.

Depending on the need, the farm also provides animals for experimentation to different Departments. Livestock of the farm is also a good source for collection of biological samples for research on different aspects of animal health.

In addition to the animal sheds and other buildings, DDD Farm has an agricultural land of approximately 110 acres for the production of green fodder, bhussa and concentrates during different seasons of the year. Presently, Sh. Y. N. Yadav, Assistant Professor Dairy Science is the Officer In-charge of DDD Farm.



OTHER UNIVERSITY OFFICES

In addition to the College of Veterinary Science and Animal Husbandry as the main constituent College of this University, Directorate of Research, Directorate of Extension, Dean Students Welfare, Dean Post-Graduate Studies, Directorate of Placement and Counselling and some other offices were also created in the University to augment the teaching, research and extension activities and students welfare programmes.

DEAN POST GRADUATE STUDIES

To streamline, strengthen and improve the postgraduate studies programme in the University, the office of Dean Post Graduate Studies was established on 28/04/2004 by the Hon'ble Vice Chancellor. Since then, Dr. H. S. Panwar, Professor of Pharmacology has been performing the additional responsibility of Dean PGS. Dr. Panwar has put his best efforts to rationalize the fee structure and regularize the postgraduate academic calendar, particularly that of PhD degree programme where in students are required to submit their synopsis with in three months from the date of their enrollment in the University.

DIRECTORATE OF COUNSELLING AND PLACEMENT

After the establishment of University, Hon'ble Vice Chancellor established the office of Directorate of Counselling and Placement. Dr. P. K. Shukla, Associate Professor Poultry Science Department was given the additional responsibility of this office with the objective of guiding the students about jobs avenues and placement opportunities in Govt. and private sector and also in higher education.

After the establishment of Placement cell, this Cell was successful in managing the First Campus Interview by Chem Biotech - Kolkatta, where in the company representatives came to University and based on the written test, selected some students for their R&D. Students selected from written test were finally called for interview at Kolkatta and after that, four students (Drs. Shivendra Singh, Vivek Srivastava, Bhavana Gupta and Ritesh Srivastava) were finally selected by the company and offered handsome pay packages.

DIRECTORATE OF RESEARCH

Directorate of Research was established in the University to augment the research activities with the limited infrastructure and staff members. Dr. S. K. Sharma former Professor and Head Epidemiology Department was the first Director of Research and Dr. Sarvajeet Yadav Associate Professor Physiology was given the additional charge of Additional Director Research. After retirement of Dr. S. K. Sharma in Jan.2003, Dr. Sarvajeet Yadav has been looking after the routine work of Director of Research.

Directorate is working in close liaison with various national/state funding agencies for development of infrastructure facilities to promote need-based research in important thrust areas. During the period under report, six research projects were sanctioned by different funding agencies. Directorate also published "Pasudhan Patrika" in Hindi on the first establishment day of the University.

DIRECTORATE OF EXTENSION

Extension is the most important activity of any state Agricultural and Veterinary University. Accordingly, for the welfare of rural people and to motivate them for adopting new and improved scientific practices in agriculture and animal husbandry operations, University is playing an important role for better implementations of extension oriented works and activities.

Directorate of Extension was established in the University on 17-05-2004 with the objective of planning and executing all extension programmes and disseminating the relevant information/knowledge from various faculties and KVK(s) to animal owners and farmers. Dr. S. D. Singh Professor and Head, Department of Veterinary and Animal Husbandry Extension was given the additional responsibility to look after the work of Director of Extension with the supporting staff of Department of Veterinary and Animal Husbandry Extension.

During the period under report, Directorate put its best efforts to promote extension activities and arranged trainings, demonstrations, kisaan mela and kisaan goshthies etc.

1. Training to farmers for goat rearing - Several groups of farmers were imparted training on scientific aspects for feeding, breeding, management and disease control in goat rearing.

2. Kisaan Mela and Pashu Pradarshani : On the Establishment Day of the University i.e. 25th Oct. 2004, Kisaan Mela and Pashu Pradarshani were organized. The mela was inaugurated by Sh. Virendra Singh, Minister of Animal Husbandry, Govt. of U. P. Kisaan Goshthies and demonstrations were also organized to help the visitors in improving their knowledge and solve their problems. In the Pashu Pradarshani, owners of animals having outstanding breed characteristics and health were given away prizes by the Hon'ble Vice Chancellor.



3. Training Programme for Veterinary Officers and Livestock Extension workers : Under ASCAD Programme of Govt. of India, four training programmes for state Veterinary Officers and one training programme for L.E.O's were organized during Aug. 2005 to Nov. 2005. All the training programmes were of 10 days duration and V. O.'s and L.E.O's of Govt. of U.P. from Agra, Jhansi, Chitrakoot, Meerut, Muradabad, Bareilly and Saharanpur participated in these training programmes.

4. Exhibitions and Kisaan Melas : University participated and put its stall at the AGRI-EXPO, 2002 at Pragati Maidan, New Delhi (Feb. 27-Mar. 05, 2002), AGRO-TECH , 2002 at Chandigarh (Nov. 30-Dec. 05, 2002), and agricultural exhibitions and kisaan melas held at Deen Dayal Dham, Farah, Mathura.

DEAN STUDENTS WELFARE

In 1975 when Veterinary College, Mathura was attached to C. S. Azad University of Agriculture and Technology, Kanpur, an Additional Dean Student Welfare office was established. After formation of this University, Dean Student's Welfare (DSW) office came up to maintain the discipline, create peaceful academic atmosphere and to provide residential facility, food and health care and other facilities for extra curricular activities including sports in the University and to provide scholarship to students.

Dr. G. D. Singh, Ex. Professor & Head, Deptt. of Gynaecology was the first DSW. Thereafter, Dr. R. S. Katiyar, Professor of Anatomy and Dr. Bharat Singh, Associate Professor, Surgery worked as DSW. Presently, Dr. M. M. Farooqui, Associate Professor, Anatomy is having the additional charge of Dean Students Welfare.

There are five hostels, namely Sampurnanand, Gautam, Shastri (erstwhile Kisaan Bhavan) and Nebra for boys and Sarojini Hostel for Girls. For entertainments of inmates, each hostel has common room facility with color T.V., news papers, magazines and telephone. Each hostel has Co-operative mess to provide healthy and hygienic food. Milk is supplied to students at subsidized rates from the University dairy farm. Each hostel is well equipped with water purifying device and water coolers to provide clean and cool drinking water and indoor games facilities for table tennis, carom, chess etc.

The Hostel rules and regulations of the University have been framed by Drs. H. N. Singh, R.S. Katiyar, Jitender Kumar, Basanti Bist, Yaswant Singh and M.M. Farooqui under the chairmanship of Dr. S. K. Garg, Honorable Vice-Chancellor and approved by the Executive Council of University in 2005. Ragging in the University is completely prohibited. University Administration ensures that there is no torture to the newly admitted students and for this, anti-ragging committee is constituted each year. DSW office has been actively involved in all the welfare activities of the students and has been instrumental in arranging educational tours and ensuring participation of students in games and sports and Inter University Youth festivals etc.



During the period under report, the following educational tours have been arranged for the students :

No.	Class	Institute Visited	Duration	Tour Leaders
	5 th BVSc. & A.H.	South India educational tour Veterinary College Mumbai - Arey Milk Colony etc.	Dec. 07 to Dec. 22 2002	1. Dr. Yashwant Singh 2. Mr. Rakesh Goel
	4 th BVSc. & A.H.	North India educational tour NDRI Karnal, PAU, Ludhina, Kasauli HPKV, Palampur	Nov. 29 to Dec. 07 2005	1. Mr. Y. N. Yadav 2. Mr. J. N. Pal
	5 th BVSc. & A.H.		1. Dr. Yaswant Singh 2. Mr. Rakesh Goyal	

The students also participated in the following All India Youth Festivals and Sports Meet.

Name of Event	No. of Participants	Recognition	Team Leaders
All India Veterinary Athletic Meet held at TANUVAS, Chennai (Jan 27-29, 2004)	7	-----	Mr. J. N. Pal Mr. Y. N. Yadav
Vth All India Agricultural University youth Festival held at MPUA&T Udaipur. (Feb. 24-28, 2004)	17	a. Dr. Rito Raj Gogoi, M.V.Sc. Biochemistry won Gold Medal in Cartooning b. Mukesh srivastava, IXth Semester B.V.Sc. & A.H. won Bronze medal in monodacting	Dr. Jitender Kumar Mr. Y. N. Yadav
VIIth All India Agricultural University youth Festival held at OAU, Bhubaneswar (Jan. 13-17, 2006)	19	a. Mr. Dinesh Tiwari, IX Semester B.V.Sc. & A.H. won the bronze medal in extempore b. Mr. Hemant singh, IIIrd Semester B.V.Sc. & A.H. won the bronze medal in Elocution.	Dr. Jitender Kumar Smt. Uma Saxena



UNIVERSITY LIBRARY

With the establishment of Veterinary College in 1947, College Library was started in a small hall of the main building. There after shifted to the present three storeyed building in 1984. After establishment of University in 2001, College Library was upgraded to University Library.

Dr. D. P. Singh, Professor of Microbiology and O.S.D. was the first Officer Incharge of the University Library from 25th of Oct. 2001 to 20th of Mar. 2003, after retirement of Dr. D. P. Singh, Dr. Daya Shankar took over the charge on 31st of Mar. 2003.

University Library is the hub of all scholastic activities. The Library has comfortable sitting space for 120 persons and has CD Room, Internet, On line Database and Xerox facilities for readers and visitors. Data entry, bar coding and cataloging of six thousands books, one thousand five hundred journals, one thousand five hundred thesis, nine thousand Computerised catalogue cards and computerised readers cards have been completed successfully. For the students of weaker sections of the society, a separate book bank has also been commissioned as additional facilities.

Dr. Daya Shankar, Officer Incharge attended trainings on "Networking and E-resources management" at INFIBNET, Ahmedabad (Sept. 15-26, 2003) and "Developing and winning research proposals" at NAARM, Hyderabad (Oct. 26-30, 2004) and seminars on "Managing information" at New Delhi, organized by EMC & BIPS, EMC Data Storage Systems (INDIA) Pvt. Ltd. New Delhi (Oct. 26, 2005) and "Usage promotion of e-information resources" at Chandigarh, organized by INFORMATICS (INDIA) Limited, Bangalore (Nov. 18, 2005).

ARIS CELL

In view of the revolutionary advancements in information technology and to provide rapid and free access to the scientific world, Agriculture Research Information System (ARIS) Cell and cordless internet and Local Area Network (LAN) facility has been established in the University with the financial assistance of Rs. 30 lacs from ICAR, New Delhi. The ARIS cell was inaugurated by an eminent alumnus of this Institute, Dr. S. K. Ranjan, Managing Director, Hind Agro, New Delhi, who is a scientist of International repute in the field of Animal Nutrition on 16-04-2004. Dr. S. K. Garg, Hon'ble Vice Chancellor of the University and Dr. R. Kadirvel, Vice Chancellor of Tamilnadu University of Veterinary and Animal Sciences, Chennai were the Guests of Honour. ARIS cell is being extensively used by the faculty members and postgraduate students to browse the internet to have access to the latest scientific developments in the field of their interest. Dr. Sharad Yadav, Associate Professor is working as Officer Incharge of the ARIS Cell.

On 4th November 2004, University linked itself to INSAT-12 Satellite through Wireless mode. Computers with internet connectivity in the ARIS Cell in addition to the internal connectivity in LAN System through router to all the departments is available in the University.

Several demonstrations by different IT companies were arranged in the University for



demonstration of hardware and software useful in educational technology in the present scenario.
Mr. Nagendra Pratap Singh, Computer Operator is meticulously managing the ARIS Cell.

PUBLICATION DIVISION

Printing and Publication Division in the University was established by the Hon'ble Vice Chancellor, Dr. Shri Krishan Garg, in July 2003 in order to facilitate the routine printing work. Dr. Jitender Kumar, Assistant Professor, Department of Physiology has been given the additional charge of this division. Since its establishment, this division has published six laboratory manuals, five issues of six monthly University Newsletter, University telephone directory and annual magazine "Srajan". This division is equipped with a photocopier machine, copy printer, computer unit and the facility for video as well as still photography. Identity cards for all the officers, teachers and employees of the University have been got prepared by this Division.



HI TECH. SEMEN TECHNOLOGY LAB

Hi Tech. Semen Technology Lab for frozen semen technology and fertility management was established during the year 2005-06 with the financial assistance of Rs. 90.00 lakhs from U. P. Livestock Development Board under National Project for Cattle and Buffalo Breeding (NRCBB) of Govt. of India.

Since establishment of Hi-Tech lab in April 2005, University has been actively engaged in imparting training to field veterinary officers on various aspects of animal reproduction including freezing of semen, artificial insemination, diagnosis and treatment of infertility and repeat breeding in animals. Up to 31 March 2006, 220 veterinary officers from different regions of U.P. have been trained in fourteen batches. The training programme on "semen technology and fertility management in cattle and buffaloes" has been designed to impart the latest practical and necessary knowledge for implementation at field level.

Hi-tech lab is not only meant for imparting training to field veterinary officers but also provides research facilities to M.V.Sc. and Ph.D students of the University in the field of frozen semen technology, super-ovulation, estrus synchronization, *in vitro*-maturation, *in vitro*-fertilization, *in vitro*-capacitation of spermatozoa and effect of drugs on semen quality.

Publications:

1. Training manual on "Semen Technology and Fertility Management In Cattle and Buffalo".
2. Book on "Semen Technology and Fertility Management In Cattle and Buffalo". (Edited by Dr. R. P. Pandey and Dr. Sarvajeet Yadav)



MADHURI KUND FARM

After establishment of U.P. Pt. Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidhyalaya Evam Go Anusandhan Sansthan Mathura, Madhuri Kund Farm along with daily labourers was transferred by C.S.A. University of Technology Kanpur in July 2003. Out of a total area of 1396 acre, 770 acre is under crop production, 123 acres is under social forestry, 80 acres is under roads and buildings while rest is covered by vilayati Babool and salt affected barren soil. Irrigation of the land is through canal water only. Presently, Dr. H. S. Parwar is officiating as Director of Farms and Dr. S. K. Sharma as the Officer In-charge of Madhuri Kund Farm.

Madhuri Kund farm is well equipped with farm machinery and implements, namely tractors, combines, straw reaper, weighing bridge, tankers, manure-spreaders, trolleys, threshers, chaff-cutter, feed-grinder, multi-crop planter, aero-blast sprayers, forage harvester, rotavator, rotatill drill, engine with pump 50 HP, compressor etc. All these machinery and implements were purchased in the NATP scheme from ICAR, New-Delhi under mechanization of Farm scheme. Wheat, barley, mustard, oats, berseem and taramira are grown at the farm to produce certified seed for National Seed Corporation. In addition to above, dry cows herd of the dairy farm of the University is also being maintained on the farm.

During 2002-03 total Rabi crop production was 4712 Quintal while production increased to 5296 Quintal during 2004-05.



KRISHI VIGYAN KENDRA

Krishi Vigyan Kendra, Mathura was transferred to this university from C.S.A. University of Agriculture and Technology, Kanpur on 1st April 2004.

PRESENT STAFF

Dr. S. K. Mishra	Training Organizer
Dr. B. L. Yadav	Training Associate (Animal Science)
Dr. Neelam S. Chauhan	Training Assistant (Home Science)
Dr. Y. K. Sharma	Training Associate (Extension)
Dr. A. S. Gujral	Training Associate (Plant Production)
Smt. Abhilasha Kulshrestha	Training Assistant (Home Science)



Following extension activities have been taken up by KVK, Mathura after inception in the university.

1 Front Line Demonstration (FLD) : Sixty frontline demonstrations on mustard and eight frontline demonstrations on Til at Cheoli and Nagla Chhahar of Baldeo and Goverdhan blocks have conducted successfully .

2. On Farm Testing (OFT) : Integrated Plant Nutrients Management (IPNM) technology in cereals like wheat, barley and paddy were demonstrated while Integrated Pest Management Technology were

demonstrated in vegetables.

The farmers were trained in use of balanced fertilizers and control of crop/vegetables devouring pests by using simple methods and motivating them to minimize the use of chemical pesticides.

3. Demonstration other than FLD : Eight demonstrations on wheat and barley benefiting farmers of Cheoli, Amirpur and Damodarpura village under Baldev and Mathura Block have been conducted successfully.

TRAININGS

On Campus : On campus trainings to 562 farmers and 153 rural youths were given to uplift their skill while 378 Extension functionaries were provided training in various aspects of scientific farming.

Off Campus : 600 farmers under various disciplines were given training of which 152 were females and 448 were males. These farmers belonged to all categories i.e. general, backward class, schedule caste and schedule tribes.

In service training : Block-wise training to the staff of State Agriculture Department is also being provided from 15th December 2005.

Seed Production : Quality seed of Moong (HUM-1) was produced during zaid 2005 at KVK farm. 12.71 Qt. Moong was supplied to U.P. Seed Corporation. Besides, Multicut Jawar during Zaid/summer was also auctioned for Rs. 33,000/- (Rupees thirty three thousand only). During kharif, 4 acres paddy and 17 acres Bajra were cultivated.

On KVK Farm, 15.25 acre commercial wheat, 16.50 acre commercial barley and 10.75 acre of wheat under seed programme were under taken and the total yield is expected to be 250 Qt. which will help to enrich the revolving fund of KVK.

LITERATURE DEVELOPED

A magazine namely 'Brij me Krishi' covering various agro and allied topics has been developed by the scientists of KVK.

PRAGATISHEEL KRISHAK MITRA PRASHIKSHAN PROGRAMME

Dr. Y. K. Sharma Training Associate (Extn.) has carried out Pragatisheel Krishak Mitra Prashikshan Programme. One farmer each from every Gram Panchayat has been selected totaling to 479 farmers from all the 10 blocks of the district were given 5 days technical training on various agriculture & veterinary related topics by different scientist at KVK centre and teachers of Veterinary College. The trainings were provided in a batch of 50 farmers each.

EXTENSION ACTIVITIES

One field day each on Mustard, Wheat and Cabbage were organized at Cheoli, Amirpur and Manoharpur respectively. Hon'ble Vice-chancellor Dr. S. K. Garg was the chief guest. In these field days, more than 150 farmers were trained about the harvesting and post-harvesting technologies of mustard, integrated plant nutrients management in wheat and barley and integrated pest management in



Vegetable crops. The Hon'ble Vice-chancellor applauded the extension work done by the scientist of KVK. During the vegetable field day, Dean Dr. S. D. Sharma examined the sick animals and suggested treatment and remedial measures.

KISAAN MELA, AGRICULTURAL EXHIBITIONS AND KISAAN GOSHTHIES

On 31st January 06, Krishi Vigyan Kendra, Mathura organized - Krishi Mela, Agriculture and Animal Exhibition and Kisaan Goshthi in the ground of University. The mela was inaugurated by Hon'ble Vice Chancellor Dr. S. K. Garg. Various Government and Private Sectors put up their stalls (more than 22) to exhibit their useful products for farmers. The notable among them were Chaudhary Agro Agencies, Information and Public Relation Department and Intas Pharma etc. The mela was visited by more than 700 farmers.

During the mela, more than 50 farmers brought their animals (Buffaloes, Cows, Equines, Horses and Bulls) for participation in Animal Show.

In the goshthi session, farmers were told about the better management practices about Rabi crops, preparation of field for cultivation of zaid crops along with their package of practices for various crops. The farmers were encouraged to ask questions and the scientists of respective disciplines answered their queries.

In the final leg, the winners were given away prizes and certificate by the Hon'ble Vice-chancellor. Dr. S. K. Mishra and his team mates were complemented for the successful management of mela by the administration.

NEW DEVELOPMENTS

1. With a view to provide precise scientific crop production technology, a Soil Testing Laboratory has been established at KVK Campus with an outlay of Rs. 11.80 lacs from ICAR.
2. For the fencing of the farm, tube wells, irrigation channels, ICAR has sanctioned Rs. 18.95 lacs out of which Rs. 7.2 lacs have been released and fencing work is in progress.
3. A vermi-compost Unit with the production capacity of Five qtls. per three months has been established at KVK Farm.

TRAININGS/SEMINARS/WORKSHOP/SUMMER SCHOOL ATTENDED

1. Dr. S. K. Mishra and Dr. Y. K. Sharma participated in 21 days training programme cum Summer Institute held at Centre for Research on Dry Land Agriculture, Hyderabad (July 17-Aug. 06, 2004)
2. Dr. A. S. Gujel participated in a training programme "Masters Trainers of Extension Reforms" held at State Agriculture Management Institute, Lucknow (Sept. 19-24, 2005).
3. Dr. Y. K. Sharma attended a two days seminar cum travel workshop held at Indian Sugar Cane Research Institute (6-7 Nov. 05).

ACHIEVEMENTS

1. Dr. Y. K. Sharma nominated as expert member in District Horticulture Mission, Mathura.
2. Dr. S. K. Mishra nominated as an expert member on board of UP DASP, Mathura.
3. Dr. S. K. Mishra nominated as expert with Bank Financing Committee of Mathura District.
4. Krishi Vigyan Kendra, Mathura stall was adjudged as the second best stall in the seminar cum exhibition held at CIRG, Makhdoom (3-4 Mar. 2006) for highlighting the KVK and University activities in Mathura district.
5. Dr. S. K. Mishra and Dr. Y. K. Sharma, were given commendation certificate by the Hon'ble Vice Chancellor for the successful organization of Kissan Mela.

विश्वविद्यालय गीत

हे विद्या मंदिर तुम्हें नमन,
हे ब्रज बसुंधरा तुम्हें नमन।
जीवन में यह संकल्प रहे,
पशु सेवा का प्रकल्प रहे।

हो नवीन अनुसंधान यहाँ,
जन-जन को हो यह बोध यहाँ।
उद्देश्य हमारे जीवन का,
हो विकास मानव जन का।

मूक पशु प्रति प्रेम बढ़े,
पशु पालन से रनेह बढ़े।
पग-पग पर हों सहायक हम,
सब बनें राष्ट्र का गौरव हम।

गुरु शिष्य परंपरा सुदृढ़ रहे,
भारत माँ से प्रेम प्रगाढ़ रहे।
अविरल यहाँ दुग्ध की धार बहे,
'सर्वे सुखिना' जीवन का आधार रहे।

हे विद्या मंदिर तुम्हें नमन।
हे ब्रज बसुंधरा तुम्हें नमन।।

16th ANNUAL SCIENTIFIC MEET ON FMD

REGIONAL CLINICAL MATRISA

9th & 10th January 2008

ORGANIZED BY

AICRP on Epidemiological Studies on Foot & Mouth Disease & Department of Epidemiology & Veterinary Preventive Medicine, U.P. Pt. DEEN DAYAL UPADHYAY UNIVERSITY OF VETERINARY SCIENCE EVAM GO-ANUSANDHAN SANSTHAN, MATHURA



ZONAL WORKSHOP

ON
LEFT & BREEDING MANAGEMENT IN CATTLE BUFFALO

VENUE: 2nd ASSOCIATION WITH
PT. DEEN DAYAL UPADHYAY PASHU CHINTA KENDRA
EVAM GO ANUSANDHAN SANSTHAN, MATHURA



WORKSHOP

DESIGN AND DEVELOPMENT OF INDIGENOUS EQUIPMENT FOR FMD
MANUFACTURING, PRESERVATION, AND
16-17th APRIL

SPONSORED BY: DEPTT. OF SCIENCE AND
AND TECHNOLOGY,

ORGANIZED BY: U.P. PT. DEEN DAYAL UPADHYAY
EVAM GO ANUSANDHAN SANSTHAN, MATHURA



NATIONAL SEMINAR

ON BREEDING BULLS-FRIZEN SEMEN
AND ITS CERTIFICATION AT NATIONAL LEVEL
MATHURA



पशु प्रदर्श

दिनांक: 31 जनवरी-06

विज्ञान केन्द्र

उ.प्र. पी. डी. देव प्रसाद वि. वि. वि. एवं गौ अनु. संस्थान

पशु प्रदर्श
विज्ञान केन्द्र
31/01/06

31/01/06