



दुवासु

प्रतिवेदन

२००७ - २०१०

**DUVASU**

**REPORT**

**2007 - 2010**

पंडित दीन दयाल उपाध्याय पशु चिकित्सा विज्ञान  
विश्वविद्यालय एवं गो-अनुसंधान संस्थान,  
मथुरा - 281001 (उ. प्र.) भारत

**Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan  
Vishwavidyalaya Evam Go-Anusandhan Sansthan,  
Mathura - 281 001 (U.P.) INDIA**

# New Infrastructure Added



Inauguration of Administrative Building by Hon'ble His Excellency



Inauguration of Central Instrumentation Lab. by Dr. S. R. Tiwar, DDG (Ed.) ICAR



Dedication of New University Campus by Prof. M. L. Madan, Vice Chancellor



Inauguration of K.V.K. Building by Prof. M. L. Madan, Vice Chancellor



Foundation Stone of Girls Hostel by Dr. S. Ayyappa, DDG (A.S. & F) ICAR



Inauguration of Kisan Bhawan by Dr. Mangla Rai, Director General, ICAR



Inauguration of L.P.M. Building by Prof. M. L. Madan, Vice Chancellor



Foundation Stone of Milk Processing Plant by Prof. M. L. Madan, Vice Chancellor



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## FOREWORD...

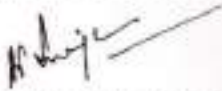
Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidalya Evam Go-Anusandhan Sansthan (DUVASU), Mathura was established during the year 2001 with College of Veterinary Science and Animal Husbandry, Mathura as its main constituent College to promote Veterinary education including research and extension and to give fillip to livestock and poultry production in the State and improving livelihood resources for the poor and landless labourers and marginal farmers. In spite of the negative growth in agriculture, animal husbandry sector on the contrary has consistently shown positive growth trends and has been contributing significantly towards the rural economy in the country. Since establishment, College of Veterinary Science and Animal Husbandry Mathura has made immense contributions in human resource development and the Alumni of this Institution have been steering Veterinary Education and Research in the country and occupying high profile positions not only in India but abroad too.



Although this University was established almost 10 years back yet it has to attain a prominent status amongst the sister institutions in the country. The founder OSDs and subsequently the Vice Chancellors have given new dimensions to the character of this University to make it a vibrant Institution, but financial constraints and lack of adequate human resource have been the biggest limitation. State Government has funded the University for construction of newer buildings for four different colleges, however, none of the colleges could be started due to non-availability of teaching and non-teaching positions.

After taking over the reins of this University in February 2010, I realized that the former Vice Chancellors had made tremendous efforts in improving the infrastructure facilities and recruiting the teaching-staff. As on day, there are 70 teachers in College of Veterinary Science and Animal Husbandry. The Progress Report of the University for the years 2007-10 briefly presents the salient achievements of the University in teaching, research, extension and infrastructure development. Although challenges are too many, but my first priority will be to improve the academic environment and discipline for effective teaching and hands on practical training to students in laboratories, veterinary clinics and on the instructional farms. Emphasis will be given on improving internal resource generation in the University through improved agriculture, dairy and poultry farms. Regularity, punctuality and dedication of employees towards their assigned duties and tasks and the congenial working environment for all communities on the campus will be another priority. I am sure, with the cooperation and support of students, employees, teachers and officers of the University, we will take the University for ahead in the arena of excellence.

I am aware about the infrastructural developments which have taken place with the financial assistance from Indian Council of Agricultural Research, New Delhi. The Council has been considerate enough in continuously supporting education and research in the University. I sincerely thank Dr. Mangla Rai, Former Secretary DARE, Govt. of India and DG ICAR, Dr. S. Ayappan Secretary DARE, Government of India and DG ICAR, Dr. S.P. Tiwari, Former DDG (Education), Dr. Arvind Kumar DDG (Education), Dr. G.C. Tiwari Former ADG (Education) and Dr. C. Devkumar ADG (Education). The kind support of Dr. Bajurbaruah, Former DDG (Animal Sciences) and other Officers of ICAR is thankfully acknowledged. I put on record and also appreciate the efforts of Prof. Satish K. Garg, Dean College of Veterinary Sciences and Animal Husbandry, Dr. Jitender Kumar, Associate Professor Veterinary Physiology, Dr. R. P. Pandey, Professor Surgery and Dr. Prabhakar, Assistant Professor Veterinary Anatomy for their sincere efforts in bringing out this University Report.

  
Prof. A. P. Singh  
Vice Chancellor

## प्राक्कथन...

प्रदेश में पशु उत्पादकता व मुर्गी पालन में अधिकाधिक वृद्धि कर घनहीन, भूमिहीन, सीमान्त कृषकों तथा दुग्ध व्यवसाय से जुड़े पशु पालकों के जीवन यापन के संसाधनों को बेहतर बनाने के उद्देश्य से उत्तर प्रदेश शासन द्वारा वर्ष 2001 में पंडित दीन दयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ-अनुसंधान संस्थान की स्थापना मथुरा में की गयी तथा पूर्वकालिक यू.पी. कॉलेज इसके मुख्य संघटक इकाई के रूप में इसमें सम्मिलित हुआ। कृषि उत्पादकता में हो रहे उत्तरोत्तर ह्रास के विपरीत पशु पालन में अनवरत विकास दर देखी जा रही है और देश व प्रदेश की ग्रामीण अर्थ व्यवस्था में इसका योगदान बढ़ रहा है। इस विश्वविद्यालय की मुख्य संघटक इकाई वर्ष 1947 में स्थापित पशु चिकित्सा विज्ञान महाविद्यालय का योगदान पशु चिकित्सा के क्षेत्र में न केवल निपुण मानव संसाधन उपलब्ध कराना रहा है, अपितु इस संस्था ने अपने वैज्ञानिक शोध द्वारा भी पशुपालन में महत्वपूर्ण योगदान दिया है।

इस संस्था के छात्र पशु चिकित्सा शिक्षण व शोध के क्षेत्र से अग्रणी रहते हुए देश-विदेश में शीर्ष पदों पर विद्यमान रहे हैं। यद्यपि इस विश्वविद्यालय की स्थापना लगभग 10 वर्ष पूर्व हुई, अपने समकक्ष देश की अन्य संस्थाओं में इसे अभी और महत्वपूर्ण स्थान प्राप्त करना है। प्रारम्भ में इस विश्वविद्यालय के विशेष कार्य अधिकारियों तथा बाद में तत्कालीन कुलपतियों द्वारा इसे अग्रणी संस्था बनाने के भरसक प्रयास किये हैं, किन्तु प्रर्याप्त वित्तीय उपलब्धता व मानव संसाधन का अभाव इसके विकास में मुख्य रुकावट रहा। प्रदेश सरकार द्वारा बायोटेक्नोलॉजी, मतस्य पालन, एल.पी.टी तथा एनीमल इण्डस्ट्रीज महाविद्यालयों के भवन निर्माण हेतु धनराशि उपलब्ध कराई गयी तथा निर्माण कार्य पूर्ण हो चुका है, किन्तु इन महाविद्यालयों के लिए शासन द्वारा शिक्षक व शिक्षणोत्तर वर्ग में कोई भी पद सृजित - स्वीकृत नहीं किया गया है।

फरवरी 2010 के प्रथम सप्ताह में मेरे द्वारा इस विश्वविद्यालय का कार्यभार ग्रहण किया गया और शीघ्र ही मुझे अनुभव हुआ कि पूर्वकालीन कुलपतियों द्वारा विश्वविद्यालय के लिए भौतिक संसाधन जुटाने तथा शिक्षकों की भर्ती करने सम्बन्धित कार्य में अतुलनीय प्रयास किये गये। आज पशु चिकित्सा संकाय में 72 शिक्षकों को कार्यरत देकर यह अनुभव करते हुए कि शिक्षण के क्षेत्र में हमारी स्थिति संतोषजनक है। नवनियुक्त युवा सहायक आचार्यों से मैं सहर्ष यह अपेक्षा कर सकता हूँ कि वे इस संस्था के भविष्य निर्माता होंगे तथा शिक्षण व शोध के क्षेत्र में विश्वविद्यालय में महती योगदान देंगे।

वर्ष 2007 से 2010 की अवधि का प्रगति प्रतिवेदन संक्षेप में विश्वविद्यालय के शोध, शिक्षण, प्रसार व डॉचागत विकास के क्षेत्र में कोई महत्वपूर्ण उपलब्धियों को संक्षेप में समाहित करता है। चुनौतियों जैसी है और निकट भविष्य में उनका सामना करने के लिए महती प्रयास किये जाने आवश्यक हैं। उपयुक्त शैक्षिक वातावरण उपलब्ध कराना, अनुशासन तथा स्नातक व स्नातकोत्तर स्तर क्लीनिक, प्रयोगशाला व फार्म पर अधिकतम अनुभव आधारित शिक्षण, प्रशिक्षण व प्रसार सुनिश्चित करना मेरी प्राथमिकताओं में शीर्ष पर है। विश्वविद्यालय के कृषि, डेरी, व कुक्कुट पालन फार्म के उत्पादकता में वृद्धि कर आंतरिक आय में वृद्धि करने पर विशेष ध्यान दिया जायेगा। नियमित समयबद्ध व समर्पित रूप से चिन्तित कार्य के निष्पादन हेतु प्रांगण में उपयुक्त वातावरण उपलब्ध कराना मेरी प्राथमिकता होगी। ऐसा मुझे पूर्ण विश्वास है कि विश्वविद्यालय के छात्रों, शिक्षकों, अधिकारियों व कर्मचारियों के सहयोग से हम इस संस्था को एक पहचान दिलाने में सफल होंगे।

भारतीय कृषि अनुसंधान परिषद द्वारा वित्तपोषित इस विश्वविद्यालय में हुए डॉचागत विकास से मैं अनभिज्ञ नहीं हूँ। परिषद ने हमेशा इस विश्वविद्यालय के शिक्षण व शोध हेतु सहायता प्रदान की है जिसके लिए मैं परिषद का आभारी हूँ। मैं भा.कृ.अ.प. के पूर्व महानिदेशक तथा डेयर के पूर्व सचिव डा. मंगला राय तथा वर्तमान महानिदेशक डा. एस. अयप्पन, सेक्रेट्री डेयर भारत सरकार, भा.कृ.अ.प. के पूर्व उप महानिदेशक शिक्षा डा.एस.पी.तिवारी, डा. अरविन्द कुमार, उप महानिदेशक शिक्षा, भा.कृ.अ.प. के पूर्व सह महानिदेशक शिक्षा डा. जी.सी. तिवारी तथा डा. सी देव कुमार, सह महानिदेशक शिक्षा का विशेष रूप से आभारी हूँ।

भा.कृ.अ.प. के पूर्व उपमहानिदेशक (पशु विज्ञान) डा. वज्रवरुआ तथा भा.कृ.अ.प. के अन्य अधिकारियों के महती योगदान के लिए भी मैं आभार प्रकट करता हूँ।

अन्त में, मैं इस प्रगति प्रतिवेदन को वर्तमान स्वरूप में प्रस्तुत करने के लिए पशु चिकित्सा संकाय के अधिष्ठाता डा. सतीश कुमार गर्ग, शरीर क्रिया विज्ञान विभाग के सह आचार्य डा. जितेन्द्र कुमार, डा. आर. पी. पान्हेय, आचार्य शत्य चिकित्सा विभाग तथा शरीर रचना विज्ञान विभाग के डा. प्रभाकर के महती प्रयासों की सराहना भी करना चाहूँगा।



प्रो. अम्बिका प्रसाद सिंह  
कुलपति

**EXECUTIVE SUMMARY**

Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan Mathura, was established on 25.10.2001 by Govt. of UP and the erstwhile UP College of Veterinary Science & A.H., Mathura became its main constituent College. University is having 782.34 acres land at Mathura and around 1400 acres at Madhurikund, about 20 km from the main campus. As envisaged in the Act of University, four other constituent Colleges, namely- College of Biotechnology, College of Fisheries, College of Livestock Products Technology and College of Animal Industry and Business Management will be started in near future. Directorate of Research and Directorate of Extension Education have been established to give impetus to research and extension activities, respectively.

During the period under report (2007-10), 5 meetings of Executive Council and 4 meetings of Academic Council were held.

**Teaching :** Presently, College of Veterinary Science and Animal Husbandry has an annual total intake capacity of 80, 48 and 22 students in BVSc & AH, MVSc and PhD programmes. A total 174, 58 and 13 students completed their respective degrees during the years under report. Interns were given hands on training in Clinical and Preventive Medicine, Surgery, Gynecology, Livestock Production, Poultry Science, Semen Technology, Biologicals Production, Zoo Medicine and Farm Management. During the years under report, twenty six students of BVSc&AH were awarded Junior Research Fellowship by ICAR..

University Library has comfortable setting space for 120 persons and has CD Rom, Internet, and on-line database facilities for readers and visitors. University library has highly specialized collection of about 30000 documents in the field of veterinary sciences, animal husbandry, poultry science and other allied subjects including books, theses periodicals and journals.

Keeping in view the advancements in information technology and to provide free and rapid access to the scientific world, Agriculture Research Information System (ARIS) Cell and cordless internet and Local Area Networking (LAN) facility has been established in the University with the financial assistance from ICAR, New Delhi. This facility is being extensively used not only by postgraduate students but undergraduate too to update their scientific knowledge and professional skill.

**Clinical Services :** Teaching Veterinary Clinical Complex (TVCC) is offering clinical services to the farmers and livestock owners from far off places including neighboring states of Haryana, Madhya Pradesh, Rajasthan and Delhi; it is also an important centre for imparting hands on training to UG and PG students. During the years under report under Experiential Learning Programme, TVCC has been extensively renovated, upgraded and strengthened with the addition of State of the art diagnostic and clinical procedure equipments including digital x-ray, laparoscope and other essential gadgets for diagnosis and treatment of animal diseases. An Intensive Care Unit (ICU) with all the essential features has also been established for small animals. During the years 2007-10, 18,755 clinical cases were treated at TVCC and there has been not only an enormous increase in number of clinical cases but also the receipt of TVCC compared to the previous years. Therefore, students got ample opportunity to learn and handle different clinical cases including pets and equines. Addition of disease diagnosis laboratory is special feature which not only serves the cause of animal owners but also provides an opportunity to the students to learn more and more about disease diagnosis and handling of the state of art equipments. In Ambulatory Clinical Practices courses, students were taken to nearby villages for learning diagnosis and treatment of animals under field conditions.

**Sports and Extracurricular activities :** University organized the Annual Sports Meet along with the literary and cultural programmes during the months of February and March during these years. Students regularly participated in All India Veterinary Colleges Badminton and Table tennis competitions held at GB Pant University Pantnagar and in All India Agricultural Universities Youth festival held at Bangalore. During the years under report, 91 students qualified NCC "B Certificate Examination" while 75 students qualified "C Certificate Examination" thereby Unit/SQN gave cent per cent result.

**Research :** During the years under report, eight outside funded research projects, five from ICAR, two from UPICAR and one from DST were obtained by the teachers of this University. In addition, four projects worth Rs. 2.95 crores were also sanctioned to the University under Rashtraiya Krishi Vigyan Yojana. Details of the research achievements under different extra-mural research projects and those of postgraduate research are detailed in the report. During the period under report, 45 research papers were published in different National and International Journals of repute and more than 100 papers presented in National and International Conferences apart from several lead and invited lectures delivered by the teachers.

During the years 2007-10, University organized several training/conferences and scientific meets. Department of Veterinary Microbiology and Epidemiology organized two days "Training-cum-workshop on Cytokine assay" (Feb. 26-27, 2008) and Foot and Mouth Disease Control Scientists meet (July 19, 2008). Under Niche Area of Excellence, training on "Advance diagnostic procedures in genital infections" was organized (16-20 Sept. 2008). Department of Surgery and Radiology organized the 4<sup>th</sup> Annual Convention and Seminar on "Affections of Mammary System in Bovine and Their

Management" on October 18, 2008 while VIII Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology and National Symposia on "Challenges, scientific validation and IPR protection of Indigenous medicinal plants based ITK" and Emerging risks to wildlife due to drugs and toxicants and ameliorative measures was organized by Department of Veterinary Pharmacology and Toxicology on November 6-8, 2008. In addition, University also organized National Seminar on "Dimensions of climate change affecting education and research agenda for livestock health and production" and National Colloquy on "Quality deliverance of undergraduate veterinary course curriculum" on September 24-25, 2009. One day seminar on diagnosis of livestock and poultry diseases was also organized on Feb. 20, 2010.

More than fifty faculty members participated in fifty three different trainings, summer/winter schools, conferences and symposia during 2007-10.

**Extension:** Extension activities of the University are undertaken through Department of Veterinary and Animal Husbandry Extension Education and the sole Krishi Vigyan Kendra, Mathura. Apart from this, disease diagnosis services through different Departments and clinical services through Teaching Veterinary Clinical Complex of Veterinary College and Ambulatory Clinical services to certain villages and gaushalas are the routine extension services for the welfare of livestock owners.

University has been annually organizing Kisan Melas, Kisan Goshthies, Clinical camps, and rendering technical assistance in disease diagnosis and also attending disease out-breaks. In addition, University has participated in outside kisan melas organized by the line Departments or organizations from time to time for the benefit of livestock owners, farmers and villagers, both men and women. In addition, KVK organized FLD, OFT and on campus and off campus training programmes for the farmers and livestock owners.

Organization of short duration training programmes for different categories of workers under various schemes of Govt. of the state and Govt. of India has been a routine feature. During the period under report, training of Veterinary Officers and Livestock Extension Officers of State Govt. and progressive farmers, livestock owners, trainers training on livestock and poultry production are some other programmes which were undertaken by the College under extension activities in an attempt to augment practical knowledge of the field veterinary personnels.

**University Farms :** 1396 acres of land is available with the University at Madhuri Kund Farm; out of which 788 acres is under cultivation. Farm is great asset of the University and also source of economic resource generation. Main limitation of the farm is lack of proper irrigation facilities and quality of soil which is alkaline in certain pockets. University undertakes fodder-seed production programmes from National Seed Corporation, U.P. Seed Corporation and certain other agencies. In spite of the limitation in terms of the agricultural implements and equipments and also the trained human resource, production performance of the farm has been satisfactory and increased over the years except during 2009-10 when because of draught, the production at Madhuri Kund Farm was lower compare to previous years.

**Poultry Farm :** College of Veterinary Science and Animal Husbandry is having its own poultry farm in the Department of Poultry Science. On the Poultry farm, broiler chickens, quails and turkeys are being reared for teaching and research purposes. Students during the financial year 2009-10 were also encouraged to undertake "Earn while you learn programme" on the Poultry Farm.

**District Dairy Demonstration Farm :** Dairy farm of the University came in to existence with the establishment of the erstwhile U.P. College of Veterinary Science in 1947 and the buildings of dairy farm are in a much depilated condition. With the financial support from ICAR during the year 2008-09 and 2009-10, some of the major repair and renovation works have been undertaken on the dairy farms including construction of boundary wall in a limited area. The pure Haryana, Haryana-cross, Murrah buffaloes and their offsprings are being maintained on the farm.

Animals available at the DDD farm are being routinely used for teaching and research purposes on different aspects of animal health and production. About 110 acres of attached land to the DDD farm is used for production of grains, green fodder and wheat straw during different seasons of the year.

**Finance and Budget :** During the years under report, State Govt. provided a sum of Rs. 1510.28 and 2364.02 lacs to the University under Plan and non-plan schemes, respectively while Indian Council of Agricultural Research, New Delhi provided the financial assistance of Rs. 349.63, 486.06 and 353.93 lacs during the years 2007-08, 2008-09 and 2009-10, respectively.

**Dignitaries Visited :** His Excellency Sh. T.V. Rajeshwar (Governor of U.P.), Sh. Awadh Pal Singh Yadav (Minister of Animal Husbandry, Govt. of U.P.) Dr Mangla Rai (Former Secretary DARE and DG, ICAR, New Delhi), Dr. S. Ayyappan (Former DDG, Fisheries), Dr. John George (Advisor DBT), Dr. A. K. Srivastava (Director cum Vice Chancellor, NDRI, Karnal), Dr M.C. Sharma (Director cum Vice Chancellor, IVRI, Izatnagar), Dr. D. Swaroop (Director, CIRG, Makhdoom), Dr. S.P. Tiwari, (Former DDG, Education), Dr. Lal Krishna (ADG, Animal Health), Dr. Kiran Singh (Former DDG, Animal Science), Dr. R. M. Acharya (Former DDG, Animal Science), Dr. P. N. Bhatt (Former Commissioner, Animal Husbandry, GOI), Dr. N. K. Bhattacharya (Former Director, CIRG, Makhdoom), Dr. J. S. Bhatia, Former ADG (Education), Dr. S. Karim, Director, CSWRI and Dr. N. P. Singh (Former Director, CIRG, Makhdoom).



## कार्यकारी सारांश

उत्तर प्रदेश शासन द्वारा पंडित दीन दयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गो अनुसंधान, संस्थान मयुरा 25, अक्टूबर, 2001 को स्थापित किया गया और वर्ष 1947 में स्थापित पशुचिकित्सा विज्ञान एवं पशुपालन महाविद्यालय मयुरा इसकी मुख्य संघटक इकाई बना। विश्वविद्यालय के पास मयुरा नगर स्थित मुख्यालय पर 782.34 एकड़ भूमि तथा इस विश्वविद्यालय से 20 किमी० दूर माधुरीकुण्ड में 1400 एकड़ भूमि उपलब्ध है। जैसा कि विश्वविद्यालय के एषट में प्रविधानिक है, इसके 4 अन्य संघटक महाविद्यालय क्रमशः कालेज आफ बायोटेक्नोलॉजी, कालेज आफ फिशरीज, कालेज आफ लाइवस्टॉक प्रोडक्शन टेक्नोलॉजी तथा कालेज आफ एनीमल इंडस्ट्रीज विजनेस मैनेजमेण्ट होमें। विश्वविद्यालय में शोध एवं प्रसार गतिविधियों के आयोजन, सम्मन्वय व मानिट्रिंग के लिए शोध निदेशालय व प्रसार शिक्षा निदेशालय की स्थापना की गई है।

इस रिपोर्ट की अवधि (2007-10) में विश्वविद्यालय कार्य परिषद की कुल 5 बैठक तथा विश्वविद्यालय विद्या परिषद की कुल 4 बैठकें सम्पन्न हुई।

### शिक्षण

वर्तमान में पशुचिकित्सा विज्ञान महाविद्यालय में बी. वी. एससी. एण्ड ए. एच., एम. वी. एससी. तथा पी. एचडी. शिक्षण कार्यक्रमों के अन्तर्गत भर्ती क्षमता क्रमशः 80, 48, व 22 शिष्यायै प्रतिवर्ष है। इस रिपोर्ट अवधि में इन पाठ्यक्रमों के अन्तर्गत क्रमशः 174, 58, व 13 छात्रों ने अपना अध्ययन पूरा किया। स्नातक पाठ्यक्रम के अन्तिम सेमेस्टर में इन्टरशिप ट्रेनिंग के अन्तर्गत छात्रों को क्लिनिकल व प्रीवेंटिव मेडिसिन, सर्जरी, गायनोकोलॉजी, लाइवस्टॉक प्रोडक्शन, पोल्ट्रीसाइस, सीमेन टेक्नोलॉजी, बायोलॉजीकल प्रोडक्शन, वन्य प्राणी मेडिसिन तथा फार्म मैनेजमेण्ट विषयों पर "हेन्ड्स आन ट्रेनिंग" प्रशिक्षण प्रदान किया गया। रिपोर्टकाल में कुल 26 छात्रों को भारतीय कृषि अनु० परिषद द्वारा जूनियर रिसर्च फेलोशिप प्रदान की गई।

विश्वविद्यालय लाइब्रेरी में 120 व्यक्तियों के बैठने का सुविधा जनक स्थान है। सी० डी० रोम, इण्टरनेट, आनलाइन डाटा बेस, एक्सेस फेंसिलिटी की भी लाइब्रेरी में पाठकों के लिए पर्याप्त सुविधा है। इस पुस्तकालय में पशुचिकित्सा विज्ञान, पशु पालन, पोल्ट्री विज्ञान तथा अन्य सम्बन्धित विषयों पर लगभग 30 हजार पुस्तकों, शोध ग्रंथों व शोध पत्रिकाओं का संकलन है।

भारतीय कृषि अनुसंधान परिषद से प्रदत्त वित्तीय सहायता से विश्वविद्यालय में इण्टरनेट लेन तथा वायरलेस लेन की स्थापना की गई है तथा यह सुविधा स्नातक व स्नातकोत्तर छात्रों का ज्ञान वर्धन हेतु उपलब्ध कराई गई है।

### क्लिनिकल सर्विस

टीथिंग वेटेरिनरी क्लिनिकल कॉम्प्लेक्स (टी.वी.सी.सी.) द्वारा उत्तर प्रदेश व मयुरा के निकटस्थ स्थित हरियाणा, मध्य प्रदेश, राजस्थान के जनपदों व दिल्ली के पशुपालकों को पशुचिकित्सा सुविधा उपलब्ध कराई जाती है। साथ ही इसका उपयोग स्नातक व स्नातकोत्तर छात्रों को व्यवहारिक प्रशिक्षण चिकित्सा प्रशिक्षण प्रदान करने के लिए भी किया जाता है। रिपोर्ट काल में एक्सपीरियेंशियल लर्निंग प्रोग्राम के अन्तर्गत टी.वी.सी.सी. को विभिन्न प्रकार के उच्च तकनीकी चिकित्सा सुविधाओं व उपचार व निदान के श्रेष्ठ उपकरणों से सुसज्जित किया गया, जिसके अन्तर्गत डिजिटल एक्सरे व दूरबीन विधि से शल्य चिकित्सा किया जाना प्रमुख है। यहाँ पर लघु पशुओं के लिए सभी आवश्यक उपकरणों से सुसज्जित दो सघन चिकित्सा केन्द्र भी स्थापित किये गये हैं। रिपोर्ट अवधि में टी.वी.सी.सी. में कुल 18755 पशुओं का उपचार किया व इस अवधि में न केवल पशुओं की संख्या में अपितु टी.वी.सी.सी. की आय में महती वृद्धि दर्ज की गई। सफल पशु चिकित्साओं के अन्तर्गत छात्रों को प्रत्येक कार्य दिवस पर विहिन्त ग्रामीण केन्द्रों पर ले जाकर प्रशिक्षित किया गया।

### शिक्षणोत्तर एवं खेल गतिविधियाँ

फरवरी व मार्च में रिपोर्ट अवधि के समय विश्वविद्यालय द्वारा वार्षिक खेलकूद व सांस्कृतिक कार्यक्रम आयोजित किये गये। छात्रों ने गोविन्द बल्लभ पन्त कृषि विश्वविद्यालय, पंतनगर में आयोजित अखिल भारतीय अन्तर महाविद्यालययै बैडमिन्टन एवं टेबल टेनिस प्रतियोगिता में तथा कृषि विश्वविद्यालय बंगलौर में आयोजित अखिल भारतीय कृषि विश्वविद्यालय युवा समारोह में भाग लिया। रिपोर्ट काल में विश्वविद्यालय की एन.सी.सी. इकाई ने शत-प्रतिशत परिणाम दिया तथा कुल 91 छात्रों ने 'बी' व 75 छात्रों ने 'सी' प्रमाण पत्र अर्जित किये।

### शोध

रिपोर्ट काल में इस विश्वविद्यालय में बाह्य वित्तपोषित शोध परियोजनाओं के रूप में भा.कृ.अनु.परिषद से कुल 5 यू.पी.सी.ए. आर. से कुल 2 तथा डी.एस.टी. से 1 परियोजनायै स्वीकृत हुयी। इसके अतिरिक्त राष्ट्रीय कृषि विकास योजना के अन्तर्गत 2.95 करोड़ की कुल 4 परियोजनायै विश्वविद्यालय के लिए स्वीकृत हुई। परियोजनान्तरगत व स्नातकोत्तर शोध उपलब्धियों का विवरण रिपोर्ट में प्रस्तुत है। इस अवधि में विभिन्न प्रतिष्ठित राष्ट्रीय व अन्तरराष्ट्रीय शोध परियोजनाओं में कुल 45 शोध पत्र प्रकाशित किये गये व शिक्षकों द्वारा 100 से अधिक शोध पत्र विभिन्न वैज्ञानिक गोष्ठियों में प्रस्तुत किये गये। रिपोर्ट काल में विश्वविद्यालय द्वारा कई प्रशिक्षण कार्यक्रम, सेमिनार व वैज्ञानिक गोष्ठियाँ आयोजित की गई। माइक्रोबायोलॉजी, एवं एपीडिमियोलॉजी द्वारा "ट्रेनिंग कम वर्कशाप आन साइटोकार्बन एसे" विषय पर द्विदिवसीय (26-27 फरवरी 2008) तथा "फुट एण्ड माउथ डिस्सीज कन्ट्रोल सांइटिस्ट मीट" (19 जूलाई 2008)कार्यक्रम आयोजित किया गया तथा भा.कृ.अनु.परिषद से वित्तपोषित 'निश एरिया आफ एक्सेलेस' परियोजना के अन्तर्गत "एडवांस डायग्नोस्टिक प्रोसीजर इन जेनाइटल अफेक्शन" विषय पर (16-20 सितम्बर 2008) प्रशिक्षण कार्यक्रम आयोजित किया गया। सर्जरी व रेडियोलॉजी विभाग द्वारा इंडियन सोसायटी फार वेटरनरी सर्जरी के यू.पी. चैप्टर की चतुर्थ वार्षिक गोष्ठी व सेमिनार का आयोजन "अफेक्शन ऑफ मैमरी ग्लैंड इन

डोवाईन एण्ड डेयर मैनेजमेंट" विषय पर 18 अक्टूबर 2008 को किया गया। फार्मेकोलॉजी विभाग द्वारा आई.एस.वी.पी.टी. का आठवां वार्षिक सेमिनार 'वैलेंजेज, साइंटिफिक वेलीडेशन एण्ड आई.पी.आर. प्रोटेक्शन ऑफ इंडीजेनस मेडिसिनल प्लांट वेड आइ.टी.के' तथा इमर्जिंग रिस्क टू वाइल्ड लाईफ इयू टू इंग एण्ड टॉक्सिकोड एण्ड एमीलियोरेटिव मेजर्स' का आयोजन 6-8 नवम्बर 2008 को किया गया। इसके अतिरिक्त विश्वविद्यालय में 'हायमेशन्स ऑफ क्लार्इमेटिक वेज अफेक्टिंग एजुकेशन एण्ड रिसर्च एजेन्स फॉर लाईवस्टॉक हेल्थ एण्ड प्रोडक्शन' विषय पर राष्ट्रीय सेमिनार व 'क्वालिटी डेवलपमेंट ऑफ अन्डर रोजुटेड कोर्स करिकुलम' विषय पर राष्ट्रीय कोलोक्वे का आयोजन 24-25 सितम्बर 2009 को किया गया। पशुओं व मुर्गियों के रोग निदान विषय पर भी एक दिवसीय सेमिनार 20 फरवरी 2010 को आयोजित किया गया।

रिपोर्ट अवधि में विश्वविद्यालय में कुल 53 शिदकों ने विभिन्न प्रशिक्षण कार्यक्रमों, समर/विन्टर स्कूल, सेमिनार व गोष्ठियों में भाग लिया।

### प्रसार

विश्वविद्यालय की प्रसार गतिविधियां पशुधन प्रसार विभाग व विश्वविद्यालय के एक मात्र कृषि विज्ञान केन्द्र द्वारा चलाई जाती हैं। इसके अतिरिक्त विभिन्न विभागों द्वारा अनवरत प्रदान की जा रही रोग निदान सेवा, टी.वी.सी.सी. द्वारा प्रदत्त पशु चिकित्सा एवं निदान सेवा तथा सचल पशुचिकित्सा सेवा भी प्रसार गतिविधियों के ही रूप में कार्यरत है।

विश्वविद्यालय द्वारा लगातार वार्षिक किसान मेले, किसान गोष्ठियां, पशु चिकित्सा शिविर व निदान कार्यक्रम भी आयोजित किये जाते हैं तथा कृषि विज्ञान केन्द्र द्वारा 'फील्ड लेवल डिमांस्ट्रेशन' व 'आउटफील्ड ट्रेनिंग' भी आयोजित की जाती है। रिपोर्ट अवधि में पशुचिकित्सा अधिकारियों के लिए प्रदेश सरकार की विभिन्न इकाईयों द्वारा वित्तपोषित प्रशिक्षण कार्यक्रम भी वर्ष भर विश्वविद्यालय द्वारा चलाये जाते रहे हैं।

### विश्वविद्यालय के प्रक्षेत्र

विश्वविद्यालय के माधुरीकुंड फार्म पर उपलब्ध लगभग 1400 एकड़ प्रक्षेत्र के 788 एकड़ भाग पर खेती की जा रही है। यह प्रक्षेत्र विश्वविद्यालय की आय का एक महत्वपूर्ण स्रोत है। सिंचाई के साधनों व फार्म मशीनरी की अनुपलब्धता तथा प्रक्षेत्र की भूमि का कतिपय भागों में क्षारीय होना यहां खेती के लिए मुख्य रुकावटें हैं। विश्वविद्यालय 'नेशनल सीड कॉर्पोरेशन', 'यू.पी. सीड कॉर्पोरेशन' व कुछ अन्य एजेन्सियों के लिए इस फार्म पर मुख्यतः चारा बीज उत्पादन का कार्य करता है। उपरोक्त वर्णित बाधाओं के रहते हुये भी इस प्रक्षेत्र से रिपोर्ट अवधि में वर्ष 2009-10 के अतिरिक्त सन्तोषजनक उत्पादन प्राप्त किया गया। ध्यानाकर्षक है कि वर्ष 2009-10 में प्रदेश का यह भाग सूखान्द्रस्त घोषित हो गया था।

### पोल्ट्री फार्म

विश्वविद्यालय में पशुचिकित्सा विज्ञान महाविद्यालय के पोल्ट्री साईंस विभाग का अपना एक पोल्ट्री फार्म है जिसका उपयोग ब्रायलर चिकन, व्हेल व टर्की पालन शिक्षण एवं शोध कार्यों हेतु किया जाता है। पोल्ट्री पालन को छात्रों के लिए रोचक बनाने हेतु वर्ष 2009-10 में इस फार्म पर 'अर्न कार्डल यू लर्न' कार्यक्रम भी प्रारम्भ किया गया।

### डिस्ट्रिक्ट डेयरी डिमांस्ट्रेशन फार्म

पशुचिकित्सा विज्ञान महाविद्यालय के साथ ही डेयरी फार्म की स्थापना वर्ष 1947 में हुई। समय समय पर वांछित अनुरक्षण कार्य न होने के कारण इसके भवन जर्जर हो गये हैं। भारतीय कृषि अनुसंधान परिषद् से प्रदत्त वित्तीय सहायता से वर्ष 2008-09 व 2009-10 में कतिपय वृहत् अनुरक्षण व नवीकरण कार्य किये गये जिसके अंतर्गत सीमित क्षेत्र में चाहरदीवारी का निर्माण भी कराया गया। यहां पर रखे गये गोवंश का पशुस्वास्थ्य व उत्पादकता संबंधी विधियों के शिक्षण व शोध कार्यों में उपयोग किया जाता है। इस डेयरी फार्म के साथ सम्यक् 110 एकड़ प्रक्षेत्र का उपयोग चारा उत्पादन के लिए किया जाता है।

### वित्त एवं बजट

रिपोर्ट अवधि में विश्वविद्यालय को प्रदेश सरकार द्वारा रु. 1510.28 व 2364.02 लाख धनराशि योजनागत व योजनेत्तर मदों में उपलब्ध कराई गई। भारतीय कृषि अनुसंधान परिषद् द्वारा वर्ष 2007-08, 08-09 और 09-10 में क्रमशः रु. 349.63, 486.06 तथा 353.93 लाख धनराशि वर्षवार उपलब्ध कराई गई।

### विशिष्ट अतिथियों का भ्रमण

रिपोर्ट अवधि में महामहिम श्री टी. वी. राजेश्वर, राज्यपाल, उत्तर प्रदेश, माननीय श्री अवधपाल सिंह यादव, मंत्री पशुधन, डा. मंगला राय, पूर्व महानिदेशक, भारतीय कृषि अनुसंधान परिषद् व सचिव डेयर, भारत सरकार, डा. टी. रामासामी, सचिव विज्ञान एवं तकनीकी विभाग, भारत सरकार, डा. जीन जार्ज, सलाहकार-डिपार्टमेंट ऑफ बायोटेक्नोलॉजी, भारत सरकार, डा. एस. अय्यप्पन, पूर्व उप महानिदेशक, फिशरीज, भा.कृ.अ.प., डा. ए. के. श्रीवास्तव, निदेशक, एन.डी.आर.आई., करनाल, डा. एम. सी. शर्मा, निदेशक, आई. वी. आर. आई., इज्जतनगर, बरेली, डा. डी. स्वरूप, निदेशक, सी.आई.आर.जी., मखदूम, डा. एस. पी. तिवारी, उप महानिदेशक शिक्षा, भा.कृ.अ.प., डा. लाल कृष्णा, सहा. महानिदेशक पशु स्वास्थ्य, भा.कृ.अ.प., डा. किरन कुमार, पूर्व उप महानिदेशक पशु स्वास्थ्य, भा.कृ.अ.प., डा.आर. एम. आचार्य, पूर्व उप महानिदेशक पशु स्वास्थ्य, भा.कृ.अ.प., डा. पी. एन. भट्ट, पशुपालन आयुक्त, भारत सरकार, डा. एन. के. भट्टाचार्य, पूर्व निदेशक, सी. आई. आर. जी. मखदूम, डा. जे. एस. भाटिया, पूर्व सहा. महानिदेशक, भा.कृ.अ.प. तथा डा. एन. पी. सिंह, पूर्व निदेशक, सी. आई. आर. जी. मखदूम के आगमन से विश्वविद्यालय गौरवान्वित हुआ।

**MISSION**

University was established by UP Govt. in 2001 with the basic objective of imparting quality veterinary and allied education, undertake need-based and basic research, integrate education and research and offer efficient extension services for the farmers and livestock owners.

**VISION**

- Produce competent and skilled human resource in the field of animal health and production and allied sectors who are socially sensitive and responsible professionals;
- Undertake region-based, need-based and basic research for improving animal health and productivity adopting modern technology including value addition;
- Validate indigenous traditional knowledge (ITK) on scientific basis;
- Provide efficient extension services at the door step of poor and marginal farmers and livestock owners and motivating them to adopt animal husbandry, poultry, fishery and related vocations as an engine of economic growth and social empowerment ;
- Social empowerment of women to become "knowledgeable stake holders" giving them economic identity;
- Interface Industry and stakeholders in the newer perspectives of open global market; and
- Ensure enhanced production from rural and urban livestock through effective disease surveillance and diagnosis, health care and vaccination programmes.
- Empower rural youth for self employment adopting integrated farming practices.

**MANDATE**

University is the premier Veterinary and Animal Science Institution and is known for quality education and research on various aspects of animal health including disease diagnosis and providing advisory and extension services through scientific knowledge and expertise for :

- Strengthening hands on training to students with special emphasis on capacity building;
- Providing opportunity to Faculty and staff to improve their scientific and working capacity and capability to make the University a vibrant organization;
- Undertaking need-based, applied and basic research;
- Bringing livestock owners, poor and marginal farmers and rural women to the Center of Technology Information System and catalyze them for continuous improvement in production and productivity of their livestock and economy;
- Collaborate with State Agriculture and Animal Husbandry functionaries, SAU's, Indian Council of Agricultural Research Institutes related to animal health and production, Livestock Industry and NGO's in an attempt to develop resurgent, sustainable, profit-oriented market based production system for livestock, poultry, fishery and allied sectors.

**CHALLENGES**

Concept of integrated farming which includes agriculture, livestock, poultry and fishery has been recognized as "high power engine" for sustainable agricultural and rural economy. Therefore, to translate the idea into reality, it is imperative:

- To produce Veterinarians and other technocrats related to allied sectors who become "job providers" not the "job seekers";
- To substantially raise the faculty strength to a level which commensurates with the minimum requirements as per the specifications of Veterinary Council of India for under-graduate teaching ;
- To improve laboratory facilities for imparting quality education including training of post-graduate and doctoral degree program students in an attempt to make them capable enough to meet the current and emerging challenges;
- To re-establish and achieve at par research excellence through optimized internal and external research fund support from the State and Central Govt. agencies; and
- To muster sufficient financial support in conformity to what a Veterinary University needs under resurgent economy and global education and trade scenario.

Challenges enumerated above have to be faced through concerted efforts of University Academia with full support of the Government.

**UNIVERSITY TARGETS**

- Revamp teaching programmes and "Teaching Methodologies", set up e-learning class-room, introduce net-based "virtual class-rooms" and promote e-teaching and learning;
- Set up "State of the Art" Instructional Farms, Demonstration Units, Veterinary Clinical Complex, Disease Investigation and Research Laboratories;
- To achieve at least 15 per cent increase per annum in the number of University graduate and postgraduate students qualifying for national competitive examinations;
- To produce competent and skilled clinicians, entrepreneurs and live stock business managers and team leaders;
- Faculty up-gradation, filling vacant posts and creating faculty positions in newer and upcoming faculties;
- One third of the faculty to handle extra-mural funded or University sponsored research projects;
- As per University Act, to obtain state support for generating trained and competent human resource in fisheries, biotechnology, livestock products technologies and industry and business management through designated colleges/faculties; and
- To augment University financial resource and refurbish infrastructure.

## I. INTRODUCTION

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 vide Act. No. 27 of 2001 on 25.10.2001 by Govt. of UP with the erstwhile UP College of Veterinary Science & AH, Mathura as its main constituent College with its all the moveable and immovable assets. University is having 782.34 acres prime land in Mathura, which includes all the buildings of Veterinary College, residential complex, hostels, Dairy Farm, Poultry Farm and the agriculture land and another agriculture farm of around 1400 acres at Madhurikund, about 25 Km from the main campus.

After the establishment of the University in 2001, initially the University offices were located in the Administrative block of Veterinary College, however, after inauguration of the Administrative Block of University by His Excellency Shri T.V. Rajeshwar, Hon'ble Chancellor and Governor of UP on February 24, 2009, all the central offices of University were shifted to new campus. The employees and teachers have occupied the newly constructed houses in new campus. The newly constructed College of Biotechnology building was inaugurated by John George, Advisor DBT, Ministry of Science and Technology, Government of India in the august presence of Prof. M.L. Madan, the Hon'ble Vice Chancellor, Dr. Lal Krishna, ADG (Animal Health) ICAR, New Delhi and other officers of the University on September 25, 2009.

The Act of University envisages opening of four more colleges, namely - College of Biotechnology, College of Fisheries, College of Livestock Products Technology and College of Animal Industries and Business Management. However, these colleges could not be started in spite of the best efforts of University due to financial constraints and non-sanction of any teaching or other positions by the Govt. During the year 2009, Government has permitted the University to start College of Biotechnology under self-finance scheme. Therefore, the University has decided to start the College of Biotechnology from the Academic Session 2010-11. In an endeavor to augment research and extension activities, Directorates of Research and Extension have also been created to coordinate research and extension activities, respectively.

## II. ORGANIZATIONAL SET-UP

The organizational set up of the University (Flow Chart I) is in almost conformity with other state agricultural, veterinary and academic universities and various bodies and authorities of the University exercise their powers at various levels to coordinate and regulate administration, education, research and extension activities.

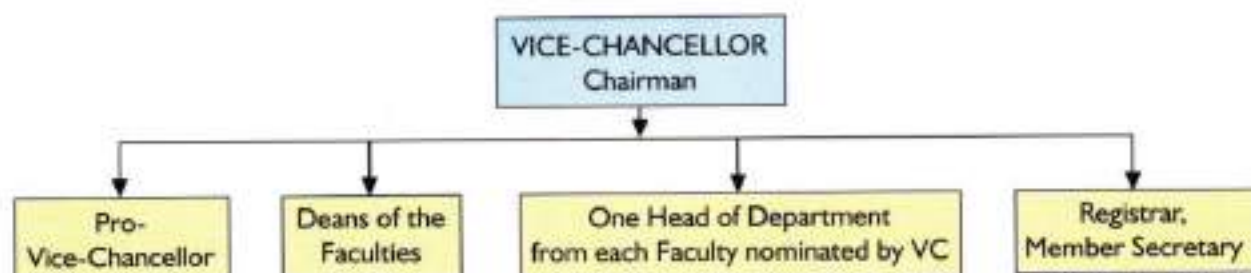
### A. AUTHORITIES OF THE UNIVERSITY :

#### 1. Executive Council -

Executive Council (EC) of the University is, in fact, the main executive body empowered to monitor, supervise and control the affairs of University. Vice Chancellor is the Chairman of EC and other members of the EC are Pro-Vice Chancellor, Secretary Animal Husbandry and Fisheries, Secretary Finance, Secretary Higher Education, Govt. of UP, Director of Animal Husbandry UP, one reputed Industrialist nominated by Govt. of UP, two eminent Veterinarians nominated by the Chancellor on the recommendation of UP Govt., two livestock farmers/breeders nominated by UP Govt. and one social worker nominated by Govt. of UP.

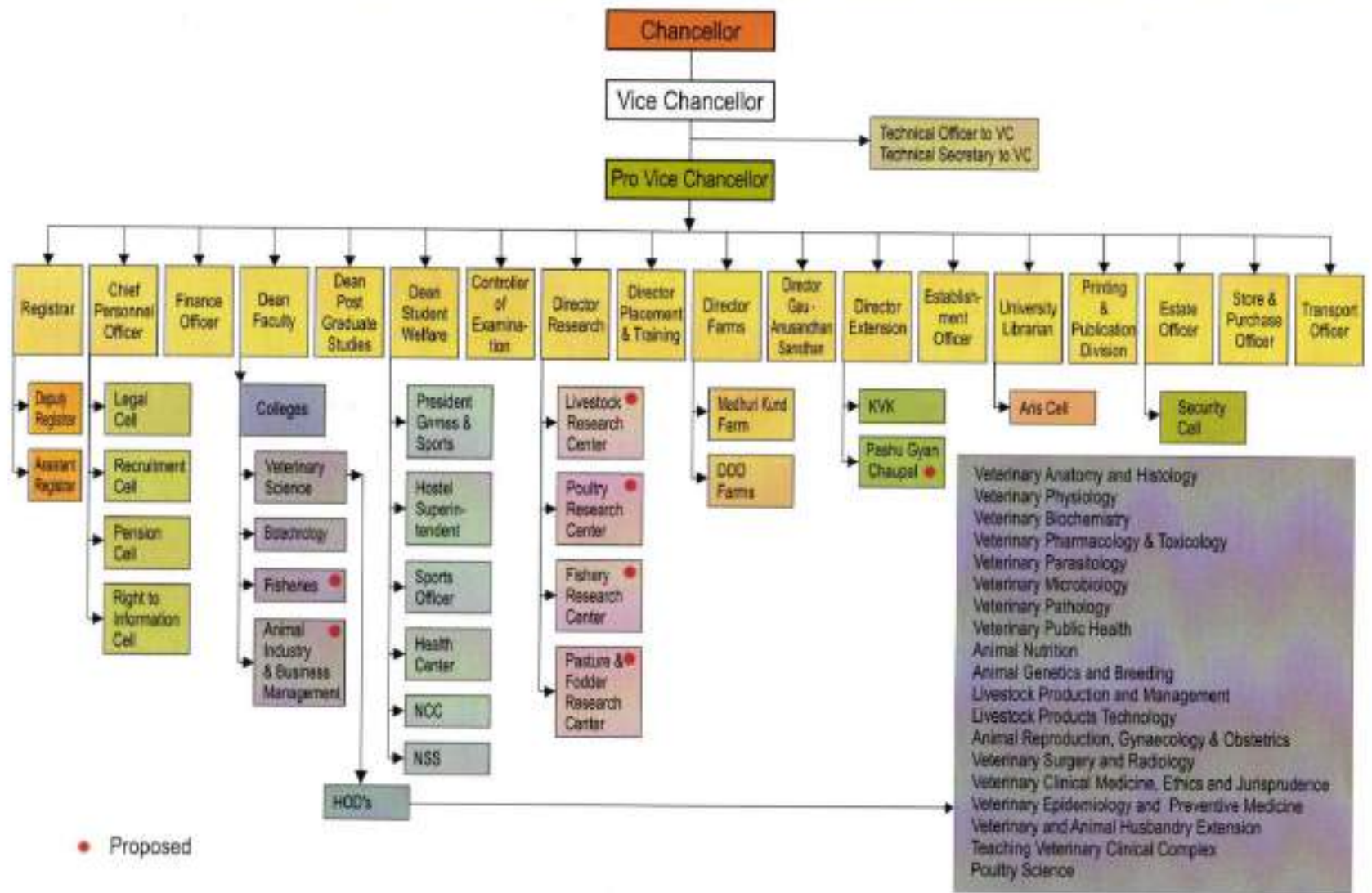
#### 2. Academic Council -

Academic Council of the University is the principal academic body which controls and frames all the academic regulations and responsible for the maintenance of standards of instruction, education and examination in the University. The flow chart of Academic Council composition is presented below :



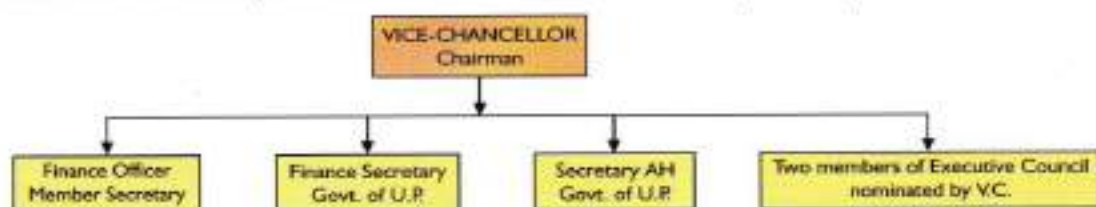
## Organizational Structure

Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalya Evam Gau-Anusandhan Sansthan, Mathura



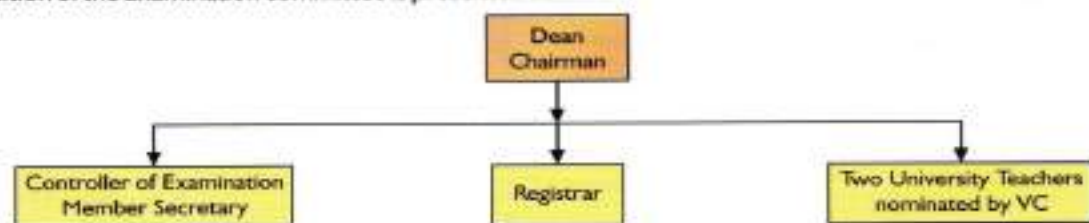
### 3. Finance Committee -

Finance Committee of the University advises the Executive Council on matters relating to administration of the property and funds of the University. The flow chart of Finance Committee composition is presented below :



### 4. Examination Committee -

Examination Committee of the University coordinates and supervises all the examinations of the University including Pre Veterinary Test (PVT), appointment of examiners, tabulation and moderation of results and make recommendations to the Academic Council for improvement in examination system. The flow chart of the composition of the Examination committee is presented below :

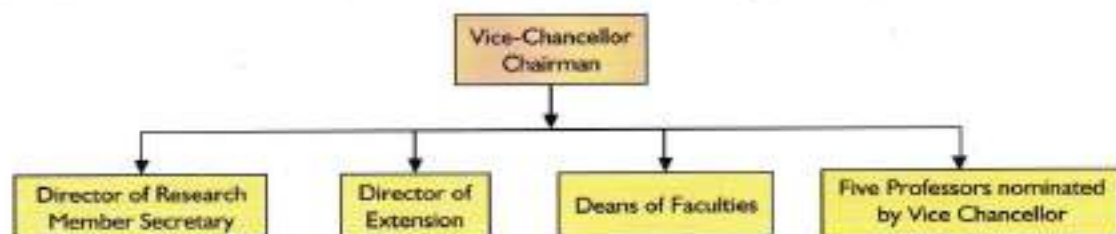


### 5. Board of Faculty -

Board of Faculty is for framing the curricula for undergraduate and post graduate programmes and to make recommendations to the Academic Council for the establishment of new departments, abolition / subdivision / or otherwise reconstitution of the existing departments. Dean of the Faculty is the Ex- Officio Chairman of Board of Faculty, and Faculty Secretary is elected on the basis of consensus amongst the faculty members. All Professors, Associate Professors and Assistant Professors of the faculty are the members of Board of Faculty.

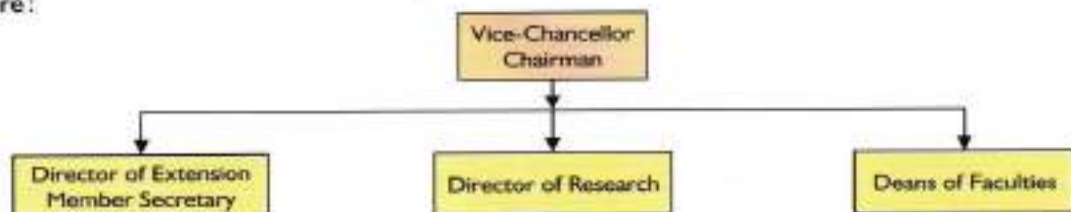
### 6. Research Advisory Committee -

Research Advisory Committee is the policy making body on research activities of the University with Vice Chancellor as its Chairman and Director of Research as the Member Secretary. The set up of this Committee is shown below :



### 7. Extension Advisory Committee -

The Extension Advisory Committee is the policy making body on extension activities of the University with Vice Chancellor as its Chairman and Director of Extension as the Member Secretary. The set-up of this committee is as shown here :



**Organizational Meetings from April 2007 - March 2010**

S.No.	Authority	Date
1.	Executive Council	12.06.2008
		10.07.2008
		12.12.2008
		28.05.2009
		29.06.2009
2.	Academic Council	04.04.2008
		17.11.2008
		07.02.2009
		24.08.2009

**B. OFFICERS OF THE UNIVERSITY (2007-2010) :**

1. Chancellor	His Excellency Sri B. L. Joshi, Governor of Uttar Pradesh His Excellency Sri T. V. Rajeshwar, Governor of Uttar Pradesh
2. Vice-Chancellor	Prof. A. P. Singh (February 08, 2010 - continuing) Dr. G. C. Tiwari (October 05, 2009 to February 07, 2010) Prof. M. L. Madan (October 05, 2006 to October 04, 2009)
3. Registrar	Dr. Sharad K. Yadav (officiating w.e.f. November 23, 2009 - continuing) Dr. Rajesh Nigam (officiated upto November 22, 2009)
4. Finance Officer	Sh. Sushil K. Yadav (w.e.f. August 28, 2009 - continuing) Sh. C. P. Nigam (August 09, 2007 to August 27, 2009) Sh. R. C. Pandey (July 16, 2005 to August 08, 2007)
5. Controller of Examination	Dr. R. P. Pandey (officiating w.e.f. December 02, 2009 - continuing) Dr. Kranti Dev (officiated up to December 01, 2009)
6. Dean Veterinary College	Dr. Satish K. Garg (w.e.f. June 30, 2009 - continuing) Dr. S. D. Sharma ((up to June 29, 2009))
6. Dean P.G.S.	Dr. A. K. Srivastava (officiating w.e.f. December 1, 2009 - continuing) Dr. Satish K. Garg (officiated December 13, 2008 - November 30, 2009) Dr. H. S. Panwar (officiated upto December 12, 2008)
7. Dean Student Welfare	Dr. M. M. Farooqui (officiating w.e.f. December 2005 - continuing)
9. Director of Research	Dr. Atul Saxena (officiating w.e.f. November 24, 2009 - continuing) Dr. Sarvajeet Yadav (officiated upto November 23, 2009)
10. Director of Extension	Dr. Sarvajeet Yadav (officiating w.e.f. November 24, 2009)
11. University Librarian	Dr. Bharat Singh (officiating w.e.f. September 9, 2008) Dr. Daya Shankar (officiated upto September 8, 2008)



### III. TEACHING

#### A. Teaching Activities :

##### 1. Teaching Institutes

University presently has College of Veterinary Science and Animal Husbandry as the main constituent College, however, four other faculties will be started in the coming years in a phased manner.

##### 2. Admission strength and turn out of students

2007-08

Degree Programme	Intake capacity	Students Admitted			Students turn out		
		Boys	Girls	Total	Boys	Girls	Total
BVSc & AH	78	61	9	70	48	1	49
M.V.Sc.	34	18	2	20	23	3	26
Ph.D.	20	3	1	4	4	1	5
<b>TOTAL</b>	<b>132</b>	<b>82</b>	<b>12</b>	<b>94</b>	<b>75</b>	<b>5</b>	<b>80</b>

2008-09

Degree Programme	Intake capacity	Students Admitted			Students turn out		
		Boys	Girls	Total	Boys	Girls	Total
BVSc & AH	78	55	11	66	51	1	54
M.V.Sc.	32	25	2	27	22	3	25
Ph.D.	16	2	1	3	6	-	6
<b>TOTAL</b>	<b>126</b>	<b>82</b>	<b>14</b>	<b>96</b>	<b>79</b>	<b>4</b>	<b>83</b>

2009-10

Degree Programme	Intake capacity	Students Admitted			Students turn out		
		Boys	Girls	Total	Boys	Girls	Total
BVSc & AH	78	57	-	57	40	9	49
M.V.Sc.	28	21	7	28	17	1	18
Ph.D.	20	18	-	-	1	2	3
<b>TOTAL</b>	<b>126</b>	<b>96</b>	<b>7</b>	<b>103</b>	<b>58</b>	<b>12</b>	<b>70</b>

##### 3. Academic attainments of students

Large number of graduates of this Institute have been competing in the national Junior Research fellowship competitive examination conducted by Indian Council of Agricultural Research, New Delhi. Over the years, there has been sharp increase in the number of students qualifying in that examination and have even been attaining very high ranks in examinations. During the years 2006-07, 2007-08 and 2008-09, seven, nine and eleven students qualified the said examination. University feels pride in highlighting such an achievement of the students. The topper of the batches, namely - Drs. Raj Kumar Yadav, Abdul Alim Ansari and Preeti Pandey received P.G. Pandey Memorial Gold Medal for having secured the highest marks in

Veterinary Pathology in BVSc & AH degree programme during the years 2007, 2008 and 2009 respectively. First and second position holders of these batches, also received XCEPT award of Alembic and Ch. Charan Singh Kisan Trust Awards. Dr. Anshul Agrawal, Dr. Subodh Kumar Singh and Neha Sinha received MOXEL merit award of Alembic and Ch. Charan Singh Kisan Trust Awards for their second positions in the respective batches.



#### 4. Academic Research

During the year 2007-10, 71 students submitted their MVSc and 12 students their PhD theses which were accepted by the University for award of the respective degrees.

### MASTER OF VETERINARY SCIENCES

#### Animal Breeding and Genetics

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Evaluation of Murrah bulls on the basis of early production performance (2007)	Dr. Akhilesh Kumar	Dr. K. C. Sharma Dr. M. R. Singh
2.	Genetic studies on growth characters in Haryana cattle (2007)	Dr. Ved Prakash Rai	Dr. R. C. Sharma Dr. M. R. Singh
3.	Studies on MHC Haplotype in guinea fowl and its association with general immunocompetence (2008)	Dr. Atul Gupta	Dr. H. N. Singh
4.	Immunocompetence profiling and DNA polymorphism in disease resistance genes in Ascel and Kadaknath native chicken (2008)	Dr. Parmatma Singh	Dr. H. N. Singh
5.	Evaluation of Sahiwal sires on the basis of early production performance of their daughters (2009)	Dr. Sumit Kumar	Dr. K. C. Sharma
6.	Role of semen additives in improving the keeping quality of buffalo semen and the effect of preservation on the morphology of spermatozoa (2009)	Dr. Sumati Kumar	Dr. K. C. Sharma
7.	Genetic studies on some economic traits of Sahiwal cattle (2009)	Dr. Amita Sharma	Dr. K. C. Sharma

#### Animal Reproduction, Gynaecology and Obstetrics

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Studies on induction of estrus in post-partum Murrah buffaloes using different hormonal treatments (2007)	Dr. Satyender Kumar Bhatti	Dr. Atul Saxena Dr. Rakesh Sharma
2.	Studies on ultrasound imaging of female genital system of bovine and their endocrine correlation (2007)	Dr. Alok Verma	Dr. Atul Saxena
3.	Studies on collection and grading of cumulus oocyte complexes from buffalo slaughter house ovaries and their <i>in-vitro</i> culture. (2007)	Dr. Vinod Kumar Verma	Dr. Atul Saxena
4.	Studies on performance of Murrah bulls following cryopreservation of their semen and the effect post thaw incubation of semen on certain seminal attributes. (2008)	Dr. Adesh Kumar	Dr. Atul Saxena Dr. Sarvajeet Yadav
5.	Studies on comparison of different doses of gonadotrophin releasing hormone (Buserelin) on the fertility status of post partum anestrous buffaloes employing ovsynch protocol. (2008)	Dr. Ravinder Kumar	Dr. Atul Saxena
6.	Studies on effect of reduced doses of gonadotrophin releasing hormone (Buseraline) on the fertility status of buffalo heifer employing ovsynch protocol. (2008)	Dr. Sahitya Kumar Yadav	Dr. Atul Saxena
7.	Studies on induction of estrus and fertility with controlled internal drug release (CIDR) device and other hormonal combination in buffalo heifers (2010)	Dr. Atul Kumar Verma	Dr. Atul Saxena

8.	Studies on comparison of fertility in different ovulation synchronization protocol for fixed time insemination in anoestrus cows. (2010)	Dr. Brijesh Kumar	Dr. Atul Saxena
9.	Studies on induction of estrus and fertility in anestrus buffaloes using progesterone releasing intravaginal device and other hormonal combination. (2010)	Dr. Ram Shyam	Dr. Atul Saxena

**Veterinary Biochemistry**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Studies on effect of enrofloxacin on semen quality and enzyme profile of Barbari buck (2008)	Dr. Chandrima Sinha	Dr. Kranti Dev Dr. Sarvajeet Yadav
2.	A study on changes in enzymatic and protein profiles of granulosa cells of buffaloes ovarian follicles during estrous cycles (2009)	Dr. Ajay Yadav	Dr. Rajesh Nigam
3.	Studies on lipid and enzymatic profile of ovarian follicular fluid and luteal tissue during estrous cycle in buffalo ( <i>Bubalus bubalis</i> ) (2009)	Dr. Santosh Kr. Sriwastva	Dr. Rajesh Nigam

**Veterinary Clinical Medicine, Ethics and Jurisprudence**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Clinico-biochemical and therapeutic studies of anorexia in lactating buffaloes (2007)	Dr. Chandrabhan Singh	Dr. H. P. Lal
2.	Haemto-biochemical and therapeutic studies of calf diarrhoea (2007)	Dr. Sudheer Kumar	Dr. H. P. Lal
3.	Studies on comparative efficacy of various anthelmintics against gastro-intestinal parasites in sheep and goat (2007)	Dr. Vinay Kumar Sharma	Dr. H. P. Lal
4.	Evaluation of anthelmintics against ancylostomiasis in dogs (2008)	Dr. B. K. Bansal	Dr. H. P. Lal
5.	Studies on prevalence of <i>Toxocara Canis</i> infestation in dogs with special reference to hematology, biochemistry and therapeutics (2009)	Dr. Manoj Chaudhary	Dr. H. P. Lal
6.	Clinico-therapeutic studies on gastro intestinal parasites in sheep and goats with special reference to Ivermectin therapy (2009)	Dr. Vijendra Singh	Dr. H. P. Lal

**Veterinary Microbiology**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Studies on immuno-modulatory competency of <i>Ocimum sanctum</i> with reference to gamma interferon expression at molecular level (2007)	Dr. Dilip Kumar Singh	Dr. A. K. Bhatia
2.	Rota virus detection in fecal samples of new born calves and children by poly-acrylamide gel electrophoresis and determination of G and P types of bovine Rota virus by nested multiplex PCR (2007)	Dr. Anuj Tiwari	Dr. A. K. Bhatia
3.	Evaluation of immunogenicity of the outer membrane protein (OMP) of <i>Pasteurella multocida</i> (B2) identified on the basis of multiplex PCR (2007)	Dr. Biswanath Chowdhury	Dr. A. K. Bhatia

4.	Studies of virulence attributes of <i>E. coli</i> isolated from diarrhoeic goat and sheep (2007)	Dr. Ram Ji Sharma	Dr. A. K. Bhatia
5.	Studies on bovine and human Rota virus strains detected by RNA-PAGE and ELISA (2008)	Dr. Sandeep Kumar Dash	Dr. A. K. Bhatia
6.	Studies on antibacterial, antiviral and immunomodulatory properties of <i>Argimone maxicana</i> leaves with reference to expression of IL-2 and TNF- $\alpha$ cytokines (2008)	Dr. Sandeep Kumar Maurya	Dr. A. K. Bhatia
7.	Studies on antibacterial and antiviral properties of <i>Ocimum sanctum</i> leaves with reference to immunomodulatory effect in poultry (2008)	Dr. Ajay Gupta	Dr. A. K. Bhatia
8.	Molecular and ELISA - based detection of viral etiology in diarrhoeic new borns (2009)	Dr. Kishan Kumar	Dr. A. K. Bhatia
9.	Studies on antimicrobial and immunomodulatory properties of <i>Chlorophytum borivillianum</i> (Safed musali) (2009)	Dr. Kunwar Bahadur	Dr. A. K. Bhatia

## Veterinary Pathology

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Arsenic poisoning in guinea pigs-a clinicopathological and pathomorphological study (2007)	Dr. Dinesh Kumar	Dr. A. K. Srivastava
2.	Experimental pasteurellosis in chickens with reference to immunomodulatory effect of <i>Ocimum sanctum</i> and molecular diagnosis by PCR (2007)	Dr. Krishna Kant Tripathi	Dr. A. K. Srivastava
3.	Pathology of lead toxicity in rats - an experimental study (2007)	Dr. Satish Chandra	Dr. A. K. Srivastava
4.	Diclofenac sodium toxicity in quail- clinicopathological and pathomorphological studies with special reference to renal dysfunction and egg quality (2008)	Dr. Sunil Kumar Singh	Dr. A. K. Srivastava
5.	Diclofenac sodium toxicity in broilers with special reference to renal dysfunction and therapeutic effect of <i>Boerhaavia diffusa</i> (2009)	Dr. Niraj Singh	Dr. A. K. Srivastava
6.	<i>Datura stramonium</i> seed toxicity in rats - a clinicopathological and pathomorphological study (2010)	Dr. Santosh Kumar Verma	Dr. A. K. Srivastava

## Veterinary Parasitology

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Studies on coccidian infections of sheep and effect on body weight (2008)	Dr. Hariom	Dr. R. D. Agrawal

## Veterinary Pharmacology and Toxicology

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Evaluation of bioenhancer potential of <i>Moringa oleifera</i> leaves and its efficacy in ameliorating arsenic-induced toxicity in broiler chicks (2007)	Dr. Kapilesh M. Varshney	Dr. Satish K. Garg
2.	Evaluation of bioenhancer potential of <i>Moringa oleifera</i> flowers and its efficacy in ameliorating lead-induced toxicity in broiler chicks (2007)	Dr. Atul Baranwal	Dr. Satish K. Garg

3.	Pharmacological studies on involvement of potassium channels and second messengers in mediating salbutamol-induced tocolysis and molecular characterization of $Bk_{\alpha}$ channels in buffalo myometrium (2007)	Dr. Soumen Choudhury	Dr. Satish K. Garg
4.	Evaluation of certain pharmacological activities of <i>Moringa-oleifera</i> leaves extract with particular reference to immunomodulation (2008)	Dr. M. Jayanthi	Dr. Satish K. Garg
5.	To evaluate some indigenous medicinal plants for their anthelmintic activity (2008)	Dr. Vipin Kumar	Dr. H. S. Panwar
6.	Pharmacological screening of some Indigenous plants for their antimicrobial activity (2008)	Dr. Santosh Kumar Jaiswal	Dr. Rajendra Singh
7.	Biomonitoring of metallic pollutants and their impact on macro and micro-minerals and reproductive hormonal profiles in cows and buffaloes of Mathura (2009)	Dr. Babu Ram Nigam	Dr. Satish K. Garg
8.	Comparative disposition kinetics and interaction studies of ofloxacin and meloxicam in goats (2009)	Dr. Rajkumar Yadav	Dr. Satish K. Garg
9.	Evaluation of certain pharmacological activities of <i>Nyctanthes arbortristis</i> flowers extract with particular reference to immunomodulation (2009)	Dr. Chandrabhan Bharshib	Dr. Satish K. Garg

#### **Veterinary Public Health**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Prevalence of hydatidosis in sheep, goats and buffaloes in Mathura and Agra regions (2007)	Dr. Vipin Kr. Gupta	Dr. Basanti Bist

#### **Veterinary Surgery and Radiology**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Cardiovascular monitoring in surgical and critically ill canine patients (2007)	Dr. Amit Kumar	Dr. R. P. Pandey
2.	Studies on canine long bone fracture immobilization in clinical cases (2007)	Dr. Monika Goel	Dr. Bharat Singh
3.	Studies on clinical anaesthesia in dogs with xylazine, ketamine and diazepam or midazolam and haloperidol tranquilization (2008)	Dr. Ravindra Kumar	Dr. Bharat Singh

#### **Veterinary Preventive Medicine and Epidemiology**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Molecular epidemiology of infectious bovine rhino-tracheitis virus infection in buffaloes of Uttar Pradesh (2007)	Dr. Priyanka Shukla	Dr. Sharad K. Yadav Dr. B. C. Pal
2.	Haemorrhagic septicemia in bovines - its epidemiology and diagnosis by molecular tools (2007)	Dr. Alka Manisha	Dr. B. C. Pal Dr. Sharad K. Yadav
3.	Detection of IBR virus and development of multiplex PCR (2008)	Dr. Rashmi Singh	Dr. Sharad K. Yadav
4.	Seroprevalence of FMD type - A and the sero conversion ratio in two commercial vaccines in India (2008)	Dr. Harpal Singh	Dr. Sharad K. Yadav
5.	Studies on molecular epidemiology of foot and mouth disease virus in bovine (2009)	Dr. Malik Raies UI Islam	Dr. Sharad K. Yadav

**Poultry Science**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Random genetic difference between Red Jungle Fowl and domesticated chicken (2007)	Dr. Amit Kumar	Dr. P. K. Shukla Dr. Deepak Sharma
2.	Effect of probiotic and herbal supplement on the performance of commercial broilers (2008)	Dr. Mahendra Tiwari	Dr. H. N. Singh
3.	Effect of antibiotic and herbal supplement on the performance of commercial broilers (2008)	Dr. Mrityunjay Goswami	Dr. H. N. Singh
4.	Identification of sexes in poultry using DNA based methods (2008)	Dr. Manoj Kumar Singh	Dr. H. N. Singh Dr. Deepak Sharma
5.	A study on comparative efficacy of antibiotic and tulsi leaf powder on the performance of commercial broilers (2009)	Dr. Shailendra Kumar Singh	Dr. H. N. Singh
6.	Effect of probiotic and herbal supplement on the performance of turkey poults (2009)	Dr. Jitendra Singh Rajput	Dr. H. N. Singh
7.	A qualitative study on spent quail meat (bone-in) pickle and their storage stability (2009)	Dr. Hari Om Singh	Dr. H. N. Singh

**Animal Nutrition**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Effect of calf starter and soya powder on the performance and rumen microflora of pre-weaning calves (2007)	Dr. Lokendra Kumar	Dr. Aditya Kumar
2.	Use of different levels of shilajit as growth promoter in broilers (2007)	Dr. Dharmendra Vyas	Dr. Aditya Kumar
3.	Effect of multi-enzyme levels on the performance of commercial broilers (2007)	Dr. Sudhir Kumar Rathore	Dr. Aditya Kumar
4.	Performance of guinea pigs on different rations (2007)	Dr. Vivek Gupta	Dr. Aditya Kumar
5.	Effect of different levels of crude fibre on the growth of weaned rabbits (2008)	Dr. Madan Murari Patel	Dr. Aditya Kumar

**DOCTORATE OF PHILOSOPHY IN VETERINARY SCIENCE**
**Animal Nutrition**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Chromium picolinate supplementation to layers and broilers for designer eggs and designer broiler meat production (2009)	Dr. Jyoti Palod	Dr. Aditya Kumar

**Animal Reproduction Gynecology and Obstetrics (Ph.D.)**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Cryopreservation of equine semen (2007)	Dr. Col. Devendra Kumar	Dr. Atul Saxena

**Poultry Science**

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	A complete <i>ex-vivo</i> embryo culture system for transgenesis and reconstitution of chicken (2007)	Dr. Jitender Kumar Chauhan	Dr. P. K. Shukla Dr. B. P. Singh

### Veterinary Surgery and Radiology

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Clinical studies on some common neoplastic conditions in dogs with special reference to surgical and chemotherapeutic management (2007)	Dr. A. K. Srivastava	Dr. Bharat Singh

### Epidemiology & Veterinary Preventive Medicine

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Sero-monitoring of <i>Pestodes Petits</i> ruminants (PPR) infection in small ruminants and evaluation of synthetic antigen in solid phase enzyme immuno-assay (2007)	Dr. Sweta Raghuvanshi	Dr. B. C. Pal
2.	Studies Epidemiology of <i>Mycoplasma pneumoniae</i> in goats (2008)	Dr. Udit Jain	Dr. B. C. Pal
3.	Molecular epidemiology of foot-and-mouth disease with special reference to differentiation between infected and vaccinated animals (2008)	Dr. Amit Kumar Verma	Dr. B. C. Pal Dr. Sharad K. Yadav
4.	Studies on molecular epidemiology of FMD virus and genetic variation in unvaccinated and vaccinated buffalos (2009)	Dr. Govind Yadav	Dr. B. C. Pal Dr. Sharad K. Yadav

### Veterinary Pharmacology and Toxicology

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Effect of <i>in vitro</i> and <i>in vivo</i> exposure of lead on adrenergic functions of vascular and non vascular smooth muscles and its amelioration with <i>Withania somnifera</i> in rats (2007)	Dr. S. K. Hore	Dr. Satish K. Garg
2.	Molecular characterization of Na <sup>+</sup> -K <sup>+</sup> -ATPase isoforms and their modulation by fatty acids in ovine pulmonary and coronary arteries (2008)	Dr. Thakur Uttam Singh	Dr. Satish K. Garg
3.	Pharmacological Evaluation of <i>Withania somnifera</i> (Ashwagandha) in normal as well as in pesticide toxicity in poultry (2009)	Dr. Rachna Varma	Dr. H. S. Panwar

### Veterinary Physiology

S. No.	Title of Theses	Student	Guide / Co-Guide
1.	Influence of exogenous melatonin on certain hormonal, enzymatic, biochemical and immunological profile in cyclic female Barbari goats (2008)	Dr. Jayant Kumbhakar	Dr. M. P. Agrawal Dr. Jitender Kumar

### 5. Scholarships

Several students of the University received financial assistance from different state and central agencies and also University in the form of merit scholarships and stipend.

S.No.	Name of the Scholarship	2007-08	2008-09	2009-10
1.	University Merit Scholarship to PG students	10	05	--
2.	University Merit Scholarship to UG students	11	04	--
3.	National Talent Scholarship	6	5	--
4.	Poor Boys Scholarship for General Category	22	44	47
5.	State scholarship for students of Other Backward Classes	144	164	205
6.	State scholarship to students from SC/ST categories	47	46	62
7.	Minority category merit scholarship	3	3	--

## 6. Hands on Training of the Interns

After completion of 4½ years of teaching programme, students of BVSc & AH during internship are exposed to different working environments in the University and outside. For better clinical exposure, students were put on round the clock duty in Veterinary Clinics and also dairy farm of the University. In addition, the students have been trained on different aspects of livestock production and management including poultry and small animals. Each batch of the Interns was on attachment at Biological Products Unit Lucknow, Kanpur Zoo and at National Animal Welfare Institute, Ballabgarh for handling, care and management of small animals including animal welfare issues. During this period, different pharmaceutical companies visited the University for interaction with Interns and acquainted them with different pharmaceutical formulations available in the market and their uses in treatment of animals.



## 7. Educational Tours

Organization of educational tours for Fourth and Final Year students to North India and All India, respectively are routine feature and activity of the University. During these tours, students visited NDRI Karnal, Vaccine Institute Kasauli, and Veterinary Colleges at Palampur, Ludhiana, Hisar, Jammu, Mumbai, Hyderabad Chennai, Tirupati and Fishery Research Institute in Goa. During these educational tours, visit and interaction of students with the students and teachers of different colleges help them in knowing a lot about the other sister Institutions.



## B. Student Welfare Activities and Amenities

Dean Student Welfare with the assistance of Hostel Wardens, President Game and Sports, Sport Counsellors, PTL, other teaching and non teaching staff monitors and coordinates all the welfare activities for students including extra curricular activities, distribution of scholarships etc. Although boys hostels in the University are in bad condition as buildings are very old yet the entertainment facilities including common hall, facilities like coloured TV, news paper, magazine and indoor games - table tennis, carom and chess etc, were provided to the students. Milk is supplied to students from the dairy farm of the University on subsidized rates. Water-cooler facility is also available in all the hostels along with solar heating system in one of the hostels.

### Student Hostels

All the desirous UG and PG students were provided hostels accommodation on demand. There are four boys and two girls hostels. With the financial assistance from ICAR, one new wing of 24 rooms is being added to the Kasturba Hostel, foundation stone for which was laid down by Dr. S. Ayyappan, the then DDG (Animal Sciences), ICAR New Delhi on September 24, 2009 in the august presence of Prof. M. L. Madan Hon'ble Vice-Chancellor DUVASU, Mathura.

HOSTEL WISE TOTAL STRENGTH OF STUDENTS			
Hostel	2007-08	2008-09	2009-10
Sarojini	25	25	25
Kasturba	27	31	24
Nehru	58	56	59
Sampurnanand	112	115	115
Shashtri	47	41	36
Gautam	112	103	91

### National Cadet Corps (NCC)

NCC R&V Sqn. U.P. 1 of Mathura Veterinary College consists of three troops and commanded by a company commander. The allocated vacancies of the Division for boys and girls were fully utilized. During the years under report, students of Veterinary College performed exceptionally well in the "B" and "C" certificate examinations.

Name of the Examination	2007-08	2008-09	2009-10
No. of Cadets Qualified "B" Certificate	56	12	23
No. of Cadets Qualified "C" Certificate	19	40	16

Basic NCC training includes drill, weapon training, field training, map reading, self-defense, first aid, hygiene and sanitation, civil defense and leadership. Cadets also learnt equestrian, saddle fitting,





shoeing and working in military veterinary hospital, army dog training and hospital management. The above training was given to the cadets in regular parades and camps. Interested cadet trained in equestrian events like horse riding, show jumping, tent pegging etc. also participated in Republic Day Parade.

### Sports Facilities and Activities

In front of the Administrative Building of Veterinary College, there is a large play ground for outdoor games like cricket, hockey, football, volley ball, kabaddi, khokho, basket ball and various athletic events. A large indoor badminton hall is also available in one of the boy's hostels. To encourage and facilitate the participation of students in sports activities, good facilities have been created and annual sports meet is a regular feature. Interclass outdoor games competitions provide an opportunity to students to take part in almost all the events. During the year 2009-10, new concrete badminton court in the girl's hostel compound and lawn - tennis court in the main play ground have been constructed. Students were also encouraged to participate in inter-veterinary universities/colleges badminton and table tennis championships held at Agricultural University, Pantnagar.



### Extracurricular Activities

Apart from teaching and sports, students are also provided opportunities to take part in various extra-curricular activities and University arranges various activities like - debates, declamation, elocution, painting, rangoli, theatre, songs, antakshari, quiz competition etc. Students are encouraged to participate in All India Agricultural Universities Youth Festivals, inter university competitions and other competitions organized by govt. and private organizations. During the year 2007 & 2009, students participated in youth festivals held at MPUAT, Udaipur & UAS, Bangalore.



### C. Clinical Activities :

#### Teaching Veterinary Clinical Complex (TVCC)

With the financial support under Experiential Learning Programme for hands on training to students and providing clinical services to farmers and livestock owners from Indian Council of Agricultural Research, diagnostic and treatment facilities in Teaching Veterinary Clinical Complex have been extensively improved. The hospital is having well equipped small and large animal theatres, radiology unit having 500 mA and 100 mA X-ray machine, 9 inch C-arm image intensifier, hydraulic operated large animal operation table and facilities for digital X-ray and inhalation anesthesia, pulse oxymeter, ECG and solid state surgical diathermy. Diagnostic Lab in TVCC is equipped with semi-automatic blood chemistry analyzer, blood analyzer, urino-meter, flame photometer etc. and used not only for diagnosis of diseases in clinical cases but also teaching and to practically train the students in disease diagnosis using these facilities.

Utilizing the facilities, the technique of closed interlocking nailing in large and small animals, and a quick laparoscopic method of canine sterilization has been standardized and service is available for livestock and pets owners. These state-of-art facilities are being routinely utilized for instructional teaching to undergraduate and postgraduate students. Students are quickly learning the necessary skills to operate and use these gadgets.

Earlier all the services in TVCC were free for livestock and pet owners and the receipt of hospital was only from the registration of animals, however, due to pressing demand for generating internal resources, the University has started nominal clinical and diagnostic charges for the goods and services provided. Number of clinical cases and receipts of the TVCC for the years under report are shown below:

Year	Number of Clinical Cases	Receipts
2007-08	4414	Rs. 28,770
2008-09	7661	Rs. 35,960
2009-10	6680	Rs. 74,212



### Clinical Diagnostic Laboratory

Clinical Diagnostic Laboratory in TVCC is equipped with Auto-Haematology Analyzer for blood biochemical parameters and other factors. Students are being trained in the clinical diagnostic lab for faecal, blood and urine analysis including skin-scrapings under the supervision of one of the teachers from Para-Clinical Departments. For microbiological, toxicological and histopathological examinations, the samples are sent to the concerned departments.



### Ambulatory Clinical Services

To impart hands on practical training and clinical practice to students to work and practice as veterinary professional under field conditions, clinical and advisory services are provided to livestock owners through Ambulatory Clinical Services in three nearby areas/villages, namely - Sonai, Vrindavan and Ramanreti under the supervision of teachers of clinical departments. Number of clinical cases handled by the students during the years 2007-08, 2008-09 and 2009-10 were 237, 349 and 491, respectively.



### Emergency Clinical Services

Keeping in view the need of livestock and animal owners, emergency clinical services in TVCC have been strengthened over the years. At present the emergency clinical services are managed by the UG and PG students under the direct supervision of teaching faculty of clinical departments. During non-working hours, teaching staff are on duty on roaster basis including duty on call to render clinical services.

### New Facilities Added

The hospital is already equipped with a number of state of art equipments including ultrasound machines having convex array and rectal transducers, minimally invasive diagnostic endoscopy. During the period under report, an digital X-Ray machine, diagnostic ambulatory van, ICU unit and laproscopic sterilization facilities have been created.



### Indoor Facilities

TVCC is having Intensive Care Unit (ICU) with all the essential gadgets for emergency management of serious small animals along with the facilities for the owners of animals. The facilities for owners of animals are being upgraded for their comfortable stay.



**D. Library Services**

University Library is the hub of all scholastic activities. The Library has sufficient space for 120 persons and has CD Rom, 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 theses, nine thousand computerized catalogue cards and computerized reader cards have been completed successfully. University library has highly specialized collection of about 30,000 documents in the field of veterinary sciences, animal husbandry, poultry science and other allied subjects including books, theses, periodicals and journals. The collection grows at an average rate of about 500 volumes including recent books per annum.

**E. 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) facilities are available in the University. During the year 2009-10, a broadband connection has also been taken to improve the internet facility.

ARIS cell is being extensively used by the faculty members and postgraduate students to browse the internet for having access to the latest scientific developments in the field of their interest. Official website of the University was launched by Sh. Awadh Pal Singh Yadav, Hon'ble Minister of Animal Husbandry and Dairy, UP in the august presence of Hon'ble Vice- Chancellor Prof. Dr. M. L. Madan and all the faculty members of the University on 7th of July 2007.

**F. Directorate of Training and Placement**

The Directorate of Training and Placement of the University helps all the graduate and postgraduate students by providing career-related information and placement assistance. Placement Directorate arranges placements in collaboration with potential employers such as hatcheries, feed manufacturers, meat processing units, pharmaceutical companies and non government organizations.

During the year 2009-10, Placement Training and Cell has been further strengthened and short term vocational and different personality development trainings have been planned for the year 2010-11 to make the student competent enough to face challenges and be confident of their professional skills and acumen.

**IV. RESEARCH****Research Co-ordination and Management:**

Research Advisory Committee (RAC) is the policy making body on various issues related to research. The RAC of University, under the Chairmanship of Hon'ble Vice Chancellor considers and makes recommendations in respect of :

1. Formulation of research projects;
2. Facilities required for implementing research projects; and
3. Orienting research to meet emerging challenges and needs of farmers.

During the year under report, following projects were sanctioned/running in the College :

**A. Rashtriya Krishi Vikas Yojna Projects (2009 - 10)**

S.No.	Title of the Project
1.	Multiplication and conservation of Haryana cattle and Bhadawari buffaloes through male germplasm by modern techniques of artificial insemination.
2.	Quality fodder seed production in the University.
3.	Pashu-Gyan Chaupal for field health and production intervention.
4.	Establishment of fish-seed production unit.

**B. Externally Funded Research Projects**

S.No.	Title of the research project	Agency
1.	Niche Area Project on Production augmentation in rural livestock through health intervention	ICAR
2.	All India Coordinated Foot and Mouth Project on epidemiological studies	ICAR
3.	Molecular epidemiology and development of diagnostic tools for IBR	UPCAR
4.	Design and development of economical viable feed processing indigenous equipments of economic feed for livestock	DST
5.	Formulation of cheap and balanced ration for bovines with locally available feeds, fodders, agro-industrial wastes and by-products	UPCAR
6.	Development of PCR for specific detection of <i>Mycoplasma agalactiae</i> and study of its molecular epidemiology in small ruminants	ICAR
7.	Out reach Programme on Pharmacological study and development of poly-herbal formulation for reproductive disorders in animals (Ethnoveterinary medicine)	ICAR
8.	Out reach Programme on Zoonotic Disease (Verotoxic <i>E-coli</i> )	ICAR

**RESEARCH ACHIEVEMENTS****PROJECT 01 - Effect of calf starter and soy powder on the performance and rumen microflora of pre-weaning calves**

The study was conducted for investigating the effect of calf starter and soy powder on the growth, nutrient intake, feed conversion ratio, rumen fermentation pattern, glucose and volatile fatty acids level in blood plasma in cow calves up to 3 month of age. Three groups of about 15 days old calves were taken, each having four calves, one as control i.e. reared under farm condition and other two as experimental, one of which were fed *adlib* calf starter up to 3 months and other group was given calf starter as in IInd group plus 100 gm. soy powder after boiling in water in morning and evening with free supply of drinking water. Fortnightly growth, feed consumption daily as well as fortnightly and feed conversion ratio were recorded in each group. Besides this the rumen liquor sample at fortnightly interval (30, 45, 60 and 75 days of feeding) was also collected from each calves by stomach tube for study the development of micro flora in rumen and effect of feed on the growth of micro flora population. A comparative evaluation of total body weight gain and feed conversion ratio of all the three groups viz. control, treatment Ist and treatment IInd were 12.27, 21.42, 20.57 kg. and feed conversion ratios were 2.15, 1.74, and 2.32, respectively. This variation in growth and feed conversion ratio of calves gives an indication that calf starter and soy powder have some effect on the tissue of the body that causes the better growth of the calves in experimental groups than control one. As regard the nutrient intake by the calves in terms of DM, CP, CF, EE, NFE, ash, calcium and phosphorus in control and treatment groups were 93.11, 6.24, 24.89, 1.55, 50.61, 8.99, 0.47 and 0.25 kg in control, 148.09, 22.4, 28.43, 3.36, 84.84, 13.37, 2.26 and 1.12 kg in treatment Ist and 184.65, 41.01, 25.86, 13.65, 89.10, 13.76, 2.14 and 1.33 kg in treatment IInd respectively.

The rumen pH, total fungal and bacterial, protozoal count population in calf starter and soy powder have no impact. The value of volatile fatty acids and ammonia nitrogen shows that these were higher in treatment Ist and IInd group which may be due to the higher amount of soluble carbohydrate and good quality protein in calf starter and soy powder. The blood picture in terms of glucose and volatile fatty acids in control and treatment groups were 47.50, 60.00, 55.00 meq/lit. of volatile fatty acids and 108.50, 114.11, 109.00 mg/dl. of glucose respectively. This shows that the calf starter and soy powder have some effect on fermentation pattern of the rumen and increases the volatile fatty acids and glucose level. From this short term study with small numbers of calves, it was concluded that feeding of calf starter is essential to the calves at early period for obtaining better growth and early maturity.

**PROJECT 02 - Use of different levels of shilajit as growth promoter in broilers**

The study was conducted for investigating the effect of shilajit as a growth promoter on the production performance, nutrient utilization and carcass quality characteristics in the broiler chicks. In this experiment five group of 4

day old chicks were taken, each having thirty chicks one group as a control and four as experimental which were fed shilajit at the level of 40, 60, 80 and 100g per 100 kg of feed. Experimental diet provide from 4<sup>th</sup> day to 7<sup>th</sup> week along with *ad libitum* water supply. The feed consumption and body weight of the birds were recorded at weekly interval. Two metabolic trials were conducted at the end of 4<sup>th</sup> week and 7<sup>th</sup> week of age respectively to find out the digestibility of organic nutrient and retention of calcium and phosphorous. A comparative evaluation of all the five group viz. control 40, 60, 80 and 100g of shilajit show that average body weight gain and efficiency of feed conversion ratio were 39.47g, 2.36 in control, 44.68g, 2.29 in 40g shilajit, 43.43g, 2.25 in 60g shilajit, 44.76g, 2.22 in 80g shilajit, 44.99g, 2.18 in 100g shilajit group respectively. This variation in production performance of broiler, gives an indication that shilajit have some effect on the tissue of the body that causes the better growth and utilization of the nutrient. The digestibility of nutrients and retention of nitrogen, calcium and phosphorous of both the trials were non significantly difference among the groups. The carcass quality characteristics and dressing yield were non significantly different in all the five groups. This can be concluded that addition of 40 to 100g shilajit per 100 kg of ration would be fed to broilers then their growth rate would be more then the normal. While the digestibility of nutrients and carcass quality would not be affected too much. For the final conclusion long term study with more number of birds with addition of different level of shilajit would be needed.

### PROJECT 03 - Effect of multi-enzyme levels on the performance of commercial broilers

The present study was undertaken to find out the effect of multienzyme supplementation on the performance of broiler chickens, viz. growth, feed intake, feed gain ratio and metabolizability of nutrients. The effect of experimental diet on carcass parameters was also investigated. One hundred fifty, day old commercial broiler chicks were randomly distributed to five dietary treatment groups consisting of thirty birds in each group. Similar, managerial conditions were maintained for all the birds during the period of seven weeks. Diet (T<sub>0</sub>) was computed as per BIS (1992) to meet out metabolizable energy, crude protein and limiting amino acid (lysine and methionine) requirement of birds to serve as control. Enzyme supplemented diets i.e. T<sub>1</sub> (T<sub>0</sub>+multienzyme @ 25 gm/100kg feed), T<sub>2</sub> (T<sub>0</sub>+ multienzyme @ 50gm /100 kg feed), T<sub>3</sub> (T<sub>0</sub>+ multienzyme @ 75gm /100 kg feed), T<sub>4</sub> (T<sub>0</sub>+ multienzyme @ 100 gm /kg feed) were formulated by adding commercial multienzyme. The average body weight gain and average feed intake per bird were recorded weekly and feed gain ratios were calculated for all treatments for different growth periods. Two metabolic trials were conducted first at the age of 4<sup>th</sup> week and 2<sup>nd</sup> at the age of 7<sup>th</sup> week for the evaluation of digestibilities of dry matter, ether extract, crude fiber, nitrogen free extract and retention of nitrogen, calcium and phosphorus. Four birds per treatment were sacrificed at 7<sup>th</sup> week of age to study carcass parameters. At the 3<sup>rd</sup> day (beginning of experiment), the average live weight of chicks was 73.66 gm. Total body weight gain in overall growth period was 2227.66 gm in T<sub>0</sub>, 2222.96 gm in T<sub>1</sub>, 2164.98 gm in T<sub>2</sub>, 2152.98 gm in T<sub>3</sub>, and 2020.27 gm in control. Enzyme supplementation increased body weight gain in all four groups in contrast to control group. However, the differences were non significant among all the groups. The feed intake was statically similar during entire experimental period in all the groups. Enzyme supplementation diet showed non significant increase in feed consumption than control. Improvement in FCR was statistically similar in T<sub>1</sub>, T<sub>2</sub>, and T<sub>3</sub>, while improvement in FCR of T<sub>4</sub> groups was in between with these three groups (T<sub>1</sub>, T<sub>2</sub>, and T<sub>3</sub>) and control (T<sub>0</sub>). The over all, FCR of T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub>, T<sub>4</sub>, T<sub>0</sub> were 2.38, 2.22, 2.19, 2.25, 2.29 respectively. Dry matter metabolizability was significantly higher in enzyme supplemented groups during overall growth period. Enzyme supplementation resulted in significant improvement in nitrogen, calcium and phosphorus retention than control. Effects of treatment on carcass characteristics were not significantly different among the groups.

### PROJECT 04 - Performance of guinea pigs on different rations

Present investigation was carried out to study the effect of feeding of different types of cereal grains (viz. gram, maize, oat, barley) on overall performance of guinea pig particularly on their growth rate, feed conversion ratio, nutrient utilization and blood glucose level. The present study was under taken to formulate the balance and economic diet for guinea pig by replacement of costly feed ingredients with cheap and easily available grains. Thirty five healthy guinea pigs (*Cavia porcellus*) of twenty one days were procured and these animals were adopted on a normal diet for three days. After adaptation, the individual guinea pig were weighted and then randomly divided into 5 groups of 7 animals in each having mean body weight of 153.43 g and fed five different type of complete ration. The rations contain similar ingredient (viz. wheat bran, berseem meal, soybean meal, fish meal, mineral mixture and vitamin-C) except grains, in which the gram was replaced by maize, oat, barley and a group was kept without addition of grain, also. The total experiment period lasted for 10 weeks duration, at each weak end total feed offered; live body weight gain and feed left over of each group were recorded. One digestion trial of three days duration at 8<sup>th</sup> week of experiment was also conducted with four guinea pigs in each group, to find out the digestibility of various nutrients and balance of Ca and P. During the entire experiment period G. pigs were offered feed and water *ad libitum* and besides the ration weighted amount of green berseem was also provided. To evaluate the best ration for guinea pig growth rate, feed gain ratio, nutrient utilization and

blood glucose level were recorded. Result showed that the average dry matter intake (DMI) and body weight gain was higher in T-2 group, whereas lowest in T-5 group, while the other groups values were similar as compare to control. The feed gain ratio for group T-5 was significantly higher, while the other groups have similar feed gain ratio as compare to control. Dry matter digestibility coefficient of five experimental rations from T-1 to T-5 was 76.22, 78.75, 78.29 and 70.81, respectively. The digestibility of nutrients of T-5 ration is significantly lower as compare to control ration. The blood glucose, retention of calcium and phosphorus were not varying significantly between different groups. It was concluded that gram can easily be replaced from guinea pig diet with cheap grains like maize, oat and barley without affecting growth feed gain ratio and digestibility of nutrients.

### **PROJECT 05 - Effect of different levels of crude fibre on the growth of weaned rabbits**

In this experiment investigations were carried out to study the effect of feeding of different levels of crude fibres (viz. 8%, 12%, 16%, 20%) on overall performance of rabbits particularly on their growth rate, feed conversion ratio, nutrient utilization and blood glucose level and total volatile fatty acid to evaluate a standard crude fibre level ration for feeding to rabbit in laboratory and rabbit rearing centers. Twenty healthy rabbits (*Oryctolagus cuniculus*) of 4-5 week old were procured and were adopted on a normal diet for three days. After adaptation, the individual rabbit were weighted and then randomly divided into 4 groups of 5 animals in each having an average 421.50 g weight. They were fed four different rations having crude fibre viz. 8%, 12%, 16% and 20%. All the rations contain similar ingredients and green berseem. The total experiment period lasted for 9 weeks duration, at each week end total feed offered; live body weight gain and feed left over of each group were recorded. One digestion trial of three days duration at last week of experiment was also conducted with four rabbits in each group, to find out the digestibility of various organic nutrients and balance of Ca and P. During experimental period rabbits were offered feed and water *ad libitum* and weighted amount of green berseem was also provided as per level of CF. To evaluate the best CF ration for rabbit growth rate, feed gain ratio, nutrient utilization and blood glucose level and total volatile fatty acid of all groups were recorded. Result showed that the average feed consumption was 37.74, 37.09, 43.15, and 49.11 g per rabbit per day in group T-1 to T-4, respectively. The highest average feed consumption (on dry matter basis) was observed in T-4 group, whereas lowest in T-2 group. The overall weekly average body weight gain was 74.44, 98.44, 84.67, and 88.89 g. The body weight gain is highest in T-2 group, whereas the lowest weekly body weight gain is observed in T-1 group. When compare all the groups the T-2 group has significantly differed from the T-1 group and higher than the T-3 & T-4 groups. The weekly average feed gain ratio in T-1, T-2, T-3 and T-4 group was 3.61, 2.64, 3.73 and 3.97, respectively. The feed gain ratio of T-2 is significantly lower than the other groups due to optimum level of crude fibre in the diet. Digestibilities of nutrients in T-2 group were significantly higher as compare to other groups. The blood glucose level, retention of calcium and phosphorus in rabbit were not significant and shows an indication of positive growth in rabbits. From this experiment it is concluded that 12% level of CF in T-2 ration was good for optimum growth, FCR and digestibility of nutrients etc than the 8%, 16% & 20% level of CF in the rabbit diet.

### **PROJECT 06 - Chromium picolinate supplementation to layers and broilers for designer eggs and designer broiler meat production**

The present investigation was carried out to study the effect of chromium picolinate supplementation on the production performance, carcass traits, carcass composition, certain serum biochemical and health status related parameters in commercial broilers and production performance, egg quality traits, egg composition, certain serum biochemical and health status related parameters in commercial layers. In the first phase one hundred and fifty, day old broiler chicks were procured and kept on deep litter system. For first 2 days, chicks were kept on standard starter ration and plain water. On third day, one hundred and twenty eight broiler chicks were selected on the basis of uniform average body weights and were divided into 4 treatment groups i.e. control, water containing organic chromium @ 200ppb, 400 ppb and 600 ppb (each treatment with two replicates), having sixteen birds each for a period of 6 weeks. Production parameters were recorded on weekly basis. A metabolic trial of 4 days duration was conducted at the end to study the effect of organic chromium supplementation on retention of nutrients. At the end of trial 6 broilers from each replicate group were slaughtered to measure different carcass traits and carcass composition. Representative blood samples were also collected at the time of slaughter to determine certain serum biochemical parameters. In second phase experiment was conducted with layers for 30 weeks. During this feeding trial, growth and production parameters were fortnightly studied. Egg quality and egg composition parameters were studied for 23 -26 weeks (Phase I), 27-30 weeks (Phase II) and 23 - 30 weeks (overall period) while nutrient retention, lipid profile of yolk and serum biochemical parameters were studied at the end of trial i.e. at the end of 30<sup>th</sup> week.

Based on the results of Phase I, another experiment was conducted with the same experimental design except difference in dose rate. The dose rate was 0, 800, 1600 and 2400 ppb levels of chromium in treatment groups 1 to 4, respectively. In this phase blood was collected at the end of experiment for biochemical as well as health status related studies. From this study it is concluded that the production performance of broilers in the present investigation was best in

600 and 800 ppb levels of chromium supplemented groups in Experiments I and II respectively. However, between 600 and 800 ppb level groups, later dose level group performed better. For designer meat production most of the parameters showed best results at 600 and 2400 ppb level groups in Experiments I and II, respectively. However, broilers provided 1600 ppb organic chromium showed statistically similar response comparable to 2400 ppb level. When all the levels of chromium supplementation were considered 600 ppb level of chromium supplementation was best for designer meat production in the present investigation. Growth performance of layers during starter and grower period and production performance of laying hens was best at 600 and 2400 ppb levels of chromium supplementation in Experiment I and II, respectively. Considering the 600 and 2400 levels of chromium supplementation in comparison to their respective control, 600 ppb level was found to be better as compared to 2400 ppb level. The important parameters considered for production of designer egg production (cholesterol, HDL-cholesterol, LDL-cholesterol and chromium content) revealed 600 ppb level to be best in Experiment I and 2400 ppb chromium level in Experiment II. All these parameters were statistically similar for 1600 and 2400 ppb levels of chromium. Most of the parameters considered for designer eggs were found to be better at 1600 ppb level as compared to other levels of organic chromium supplementation. Therefore, it can be finally concluded from the results of present investigation that organic chromium supplementation through water may be advised at 800 ppb level to improve production performance of broilers, 600 ppb level for designer meat production, growth performance of starter and growers and production performance of laying hens and 1600 ppb level for designer egg production which is the choice of health conscious consumers these days.

### PROJECT 07 - Prevalence of hydatidosis in sheep, goats and buffaloes in Mathura and Agra regions

Hydatidosis is one of the important parasitic zoonosis. The disease caused by larval stage of *Echinococcus granulosus* i.e. hydatid cyst. The infection in animals and man occurs by consuming food and water contaminated with dog faeces containing eggs of *E. granulosus*. The canine population gets infection by consuming hydatid cysts from animals. The present investigation of hydatidosis in Mathura and Agra regions revealed an overall prevalence in sheep, goats and buffaloes as 4.52, 2.78 and 9.87 percent, respectively. The infection rate of hydatidosis in rams and ewes was recorded as 4.34 and 6.25 percent, respectively and for buffalo bulls and she buffaloes the infection rate was 10.71 and 12.29 percent, respectively. The adult sheep above 1 year had the incidence as 5.13 percent and in lambs it was 2.63 percent, while the adult goats had 3.25 percent and kids had 1.75 percent. The corresponding figures for buffaloes above 2 year and buffalo calves were 11.93 and 3.70 percent respectively.

The present investigation indicated that the most common site of infection was the lungs. In sheep 57.14 percent of lungs, 42.85 percent of liver were found to be affected with hydatid cyst. The infections in goats were found to be 80.00 and 20.0 percent in lung and liver, respectively and for buffaloes 78.12 and 21.87 percent lung and liver were infected respectively.



Fig:1 - Showing hydatid cyst from liver of sheep



Fig:2 - Showing hydatid cyst from lung of buffalo

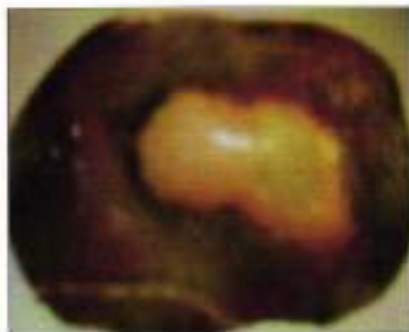


Fig:3 - Showing hydatid cyst from liver of buffalo

### PROJECT 08 - Pathology of lead toxicity in rats - an experimental study

The present study was carried out to elucidate the clinical manifestations and haematological, sero-biochemical and pathomorphological changes along with quantitative assay of lead in the blood, spleen, liver, kidneys and bone of the rats exposed to lead nitrate by oral gavage.

For this study, 45 rats of Wistar strain aged about 6 weeks, either sex, weighing between 200-250 gms were divided into three groups comprising 5 animals in Group I (acute toxicity), 30 animals in Group II (chronic toxicity) and 10 animals in Group III (control). The animals of Group I were provided lead nitrate @ 600 mg/kg body weight, single dose to produce acute toxicity and the rats of Group II were administered lead nitrate @ 100 mg/kg body weight for 90 days to produce chronic toxicity by oral gavages as 10% aqueous solution in double distilled water. The animals of Group III were maintained on plain water to serve as control.

All the rats of Group I showed discomfort, weakness and ascending paralysis of hind legs followed by forelegs and death of all the rats within 7 days of experimentation. Similar clinical symptoms except the ascending paralysis of legs were produced by the rats of Group II on 50<sup>th</sup> days post administration of lead nitrate. There was no mortality observed in the rats of Group II, however, Hemoglobin, PCV, TEC and Erythrocyte indices in the rats of Group II were found to be significantly decreased. It also revealed leucopenia, lymphocytopenia, neutrophilia, hypoproteinemia, hypoalbuminemia and Uremia. Bilirubin, glucose, cholesterol AST and ALT were also increased. It also revealed highly significant increase in lead concentration in blood, spleen, liver, kidneys and bone. There were lesions of degenerative changes and necrosis in all the visceral organs.

### **PROJECT 09 - Arsenic poisoning in guinea pigs-a clinicopathological and pathomorphological study**

The present experimental study was conducted to elucidate the clinical, clinicopathological, immunological, and pathomorphological changes along with quantitative assay of arsenic in blood, hair and vital organs of guinea pigs exposed to arsenic trioxide by oral gavages.

For this study, 30 guinea pigs of either sex, aged 6-8 weeks were randomly divided into three groups comprising 10 animals in each. The animals of Group I was provided @ 10 mg/kg body weight once to produce oral acute toxicity. The guinea pigs of Group II were given @ 1 mg/kg body weight daily for a period of 90 days to produce chronic toxicity through oral gavages as 1% aqueous solution of arsenic trioxide. The animals of Group III were maintained on plain water to serve as control.

All the animals of Group I showed abnormal clinical symptoms. The guinea pigs of Group I revealed 80% mortality within 7 days of post exposure where as no mortality was observed in the animals of Group II.

There was significant decrease of hemoglobin, PCV and TEC in the guinea pigs of Group II. The TLC revealed significant leucopenia and DLC showed significant lymphocytopenia. Serobiochemical profile showed significant hypoproteinemia and hypoalbuminemia. The cell mediated immune response was significantly reduced in animals of Group II studied by percutaneous application of DNCB as there was decrease in the mean skin thickness. There was significant increase in superoxide dismutase and Catalase activities in arsenic exposed animals (Group I & II) as compared to the control.

Ninety days exposure @ 1 mg/kg body weight daily showed highly significant increase in arsenic concentration in blood, hair, liver, lungs and kidneys with the mean values of 57.186, 33.719, 311.969, 95.80 and 272.95 ppb in Group II as compared to the values of animals in Group III. Gross and histopathological lesions revealed congestion and degenerative changes.

### **PROJECT 10 - Experimental pasteurellosis in chickens with reference to immunomodulatory effect of *Ocimum sanctum* and molecular diagnosis**

The present experimental study was carried out in chickens to study the pathology and molecular diagnosis of fowl cholera with an attempt to ascertain the efficacy of *O. sanctum* in prophylaxis and control of the disease.

For these study 90 chickens aged 4 weeks were divided into 3 groups comprising 35 birds in Group I, 35 in Group II and 20 in Group III.

The birds of Group I was given aqueous cold extract of *O. sanctum* to orally @ 250mg/Kg.B.wt/birds daily for 21 days and then challenged with 0.2 ml of 18 hrs BHI broth culture of *P. multocida* (A: 1). The birds of Group II were non medicated and challenged with 0.2 ml of 18 hrs BHI broth culture of *P. multocida* (A: 1). The birds of Group III were non medicated and non challenged which served as control.

The leucocytic and protein profile showed highly significant increase. Intra-dermal application of DNCB revealed highly significant increase in skin thickness in birds of Group I. On clinical examination, some of the birds of Group II showed per acute form of disease. Birds of Group II revealed 100% mortality whereas, the medicated group showed 60% death.

PCR assay using different template DNA preparation from liver and spleen tissue showed amplified bands of identical size. Thus, it was concluded that the procured freeze dried culture of *P. multocida* (A: 1) was highly pathogenic to the chicken, *O. sanctum* leaves can be used for the prophylaxis and control of the fowl cholera due to its immunomodulatory property and Fowl cholera diagnosis using PM-PCR and *P. multocida* (A: 1) specific PCR assay from stored tissue samples is very simple, rapid and specific and gave very good sensitivity.

### **PROJECT 11 - Diclofenac sodium toxicity in quails - Clinicopathological and pathomorphological studies with special reference to renal dysfunction and egg quality**

The present experimental work was conducted to elucidate the clinical, clinicopathological, immunological, and pathomorphological studies with special reference to renal dysfunction and egg quality in adult quails treated with Diclofenac sodium.



For this study, 120 apparently healthy Japanese quails, of either sex, aged 4-weeks, having 150 to 200 gm body weight, were randomly divided into 2 groups comprising 80 quails in Group-I (Toxicity) and 40 in Group-II (Control). The quails of Group-I were administered per os with 0.5 mg/kg body weight Diclofenac sodium daily for 60 days. The birds of Group-II were maintained on plain water to serve as control.

Japanese quails of Group-I revealed observable clinical signs viz- anorexia, emaciation, dehydration, depression, letharginess, feather plucking and swollen and painful joints after a month of daily oral administration of Diclofenac @ 0.5 mg/kg body weight. There was significant decrease of lymphocytes, protein, Hb, PCV and TEC while increase in MCV, heterophil, creatinine and urea.

The cell mediated immune response was significantly reduced in birds of Group-I observed by epicutaneous application of DNCB as there was decrease in the mean skin thickness at the site of application on 24, 48 and 72 hours post challenge as compared to the birds of control group.

Effect of Diclofenac sodium toxicity on the external and internal egg quality revealed no significant change in the egg quality except shell thickness and pigmentation on the shell of eggs laid by the birds of toxicity group.

The eggs of Group-II (control) have multiple brownish black small to large spots which were irregularly distributed on shell surface. The eggs of Group-I (toxicity), the pigments which were present on the shell surface were light in colour and scarcely distributed. Gross and histological examination revealed deposition of crystals of urates over the visceral organs and joints.

### **PROJECT 12 - Clinical studies on some common neoplastic condition in dogs with special reference to surgical and chemotherapeutic management**

In a study of five years, 407 dogs presented with the history of tumorous/hyperplastic growths were examined, diagnosed and their therapies/management were done. Age, sex, breed of all the animals was recorded. The data pertaining to reporting season, sex and age were collected and analyzed statistically to study the influence of these parameters on the occurrence of neoplasms. Of these 407 cases of tumors, the analysis was done and they were categorized on histopathological examination as Benign=149 and Malignant =258. Sexwise male were more in numbers=213 and females were=194. Venereal cell sarcoma, malignant tumor of external genitalia was found to be in highest occurrence as a single type=158. The second most prevalent tumors are those affecting mammary gland=99. The important benign type tumors of mammary gland were=64 and the malignant tumors were=35. Other important tumors encountered in different organs and skin were 150. Out of them malignant ones were=65 and the benign ones=85.

To diagnose the neoplastic conditions, the various diagnostic protocols were also adopted as per the necessity of the particular case. In required cases the biometric measurement, of the tumor in individual cases has been recorded using vernier calipers and expressed in cm<sup>3</sup> (LXBXH). For radiological interpretations Plain radiography, Contrast radiography viz. I.V.P., Barium meal and Cystography was conducted. The ultrasonography has been also done in many cases. The most advanced diagnostic aids of C.T. Scan were carried out with multislice C.T. Machines having strength of 3.5 to 7 Tesla and M.R.I. was also conducted in some cases for diagnosis. Endoscopy, has also been used for interpretation of tumour growths in various internal organs.

For confirmative diagnosis Biopsy, Impression smear and Histo- pathology were also conducted with the help of Pathology Department. Based on the neoplastic condition(s), appropriate cytological techniques were employed viz. fine needle aspiration, tissue imprints or impression smears. According to the nature of the aspirated material, squash preparation, blood smear technique of "starfish" preparation were also used for smear preparation. From the cases presented with exudative or ulcerated mass, several tissue imprints or impression smears were made. The smears were stained using Ramonowsky's stains such as Diff-quick, Wright and/or Wright's-Leishman's combination, bichrome or trichrome stains such as Haematoxylin-Eosin and Papanicolaou or Sano's triple stain etc. Wherever, required, smears were also subjected to special stainings like Toluidine blue, Periodic Acid-Schiff, Sudanophilic stains and Immunohistochemical stains to demonstrate the tissue constituents/cell subtypes in order to arrive at the specific diagnosis of neoplasms. Tissue samples were collected for histopathology from surgically excised masses. Punch biopsies of skin of selected cases were also taken for microscopic examination. Duplicate sections were taken on slides coated with 3-Aminopropyl-triethoxysilane for AgNO<sub>3</sub> staining and PCNA immunohistochemistry. Haematological and Biochemical interpretation were also made.

The management of various kinds of tumours was done by Autogenous Vaccination; advanced surgical methods were performed like General Surgery, Cryo Surgery, Micro Surgery, Surgical Diathermy/Electrocautery; Endoscopic Surgery; latest chemotherapeutic drugs were used for Chemotherapy and in some cases Radiotherapy has also been conducted, depending on particular case.

Some very rare cases were encountered like Trachial Adneocarcinoma, Rhabdomyoma, Abdominal Lipoma, Synoval Sarcoma, Skull Tumour, Cornual Tumour (Brain tumours), Leiomyoma, Seminoma, Osteoblastic Sarcoma,

Melanoma at limbus and Thyroid tumour etc. They have been managed with special Surgery/Therapies.

Some very interesting and unusual findings in clinical diagnosis and histopathological interpretations have been recorded.

### **PROJECT 13 - Studies on canine long bone fracture immobilization in clinical cases**

In this study, 22 clinical cases of fracture in canine which were referred to the Department of Surgery and Radiology, during the period of October 2006 to April 2007 were included. These cases were related to fracture of long bones i.e. femur-11, tibia fibula-4, radio ulna-4 and humerus-1. The cases were divided into four groups.

Group A: Plaster of Paris along with splint and supportive vitamins, mineral supplement and preventive medication.

Group B: Wooden splint in fore limb and Thomas splint along with wooden splint and crepe' bandage for tibial fracture with supportive vitamins, mineral supplement and preventive medication.

Group C: Intramedullary bone pinning with supportive vitamins, mineral supplement and preventive medication

Group D: Crepe' bandage and Homoeopathic medication

Result of the present study indicated that fracture immobilization and treatment by (Group A) plaster of Paris along with splint bandages with supportive vitamins, mineral supplement and preventive medication and (Group B) Wooden splint in fore limb and Thomas splint along with wooden splint and crepe' bandage for tibial fracture with supportive vitamins and mineral supplement and preventive medication. Successful in management of fracture cases of tibia fibula, radio ulna and distal third femur in very young age and well managed with Thomas splint, traction and counter traction.

The intramedullary bone pinning in femur fracture is well suited along one midshaft and proximal third femur fracture cases.

In the distal femur fracture cases, if the intramedullary bone pinning is attempt late and distal stump has been solidified. It works well. Whereas, in distal femur fracture case intramedullary bone pinning is attempted in early stage immediately in 2 or 3 days of fracture occurrence, the patient dislodged the intramedullary bone pin.

It is observed that immobilization of fracture fixation by intramedullary bone pinning when attempted between 7 to 25 days of fracture occurrence in dogs, it work better.

The transverse fracture which has more stability after reduction are well managed by the plaster of Paris along with splint bandages with supportive vitamins, mineral supplement and preventive medication and Wooden splint in fore limb and Thomas splint along with wooden splint and crepe' bandage for tibial fracture with supportive vitamins and mineral supplement and preventive medication and Intramedullary bone pinning with supportive vitamins, mineral supplement and preventive medication. In comparison to those fractures which are unstable after fracture reduction.

The Homoeopathic medication, Arnica-30, Calcarea phosphorica 6x, Symphytum-30, and AT-200 (Biochemical preparation, SBL PVT) were found to be facilitate to fracture healing.

In open infected intra-articular involving condyles with small piece, the internal fixation is unsuccessfully attempted without any favourable result. Such cases should be best managed with palliative treatment complete rest, cultural examination, antibiotic, antiseptic dressing and calcium, mineral supplements.

It is observed, it is better not to disturb the well organized haematoma and when the case is reported delayed, it is better to manage with splintage, plaster cast, crepe bandage as per suitability of the case.

### **PROJECT 14 - Cardiovascular monitoring in surgical and critically ill canine patients**

The study was conducted on 30 dogs undergoing surgical operations at the department of Surgery and Radiology and 30 selected critically ill dogs that reported to college clinics during 1<sup>st</sup> October 2006 to 30<sup>th</sup> July 2007.

The parameters examined included heart rate, respiratory rate, rectal temperature, haematology (Hb, PCV, PMN%), blood pressure (BP), peripheral venous pressure (PVP), serum electrolytes (Ca, Na, K, P, Cl) and electrocardiography. The subjects underwent surgical treatment and general anaesthesia and some was critically ill. All the dogs were divided into two major groups A and B. All the sub groups contained equal number of dogs. Group A was subdivided into sub group A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub>, A<sub>4</sub>, A<sub>5</sub>, A<sub>6</sub> and these sub groups were belonged to various surgical conditions e.g. fracture, ear affections, perineal hernia, urolithiasis, OH or castrations and mammary tumours respectively. Group B was subdivided into B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>4</sub>, B<sub>5</sub>, B<sub>6</sub> and these sub groups belonged to various critical conditions like anaemia, dehydration, nervous signs, infections, paralysis and trauma (with gross infection) respectively. In case of group A parameters were recorded at maximum depth of anaesthesia or during surgery.

A non significant decrease in HR, RR and Temp were recorded in group A. Significant difference was observed in HR, RR and Temp in group B. The HR, RR and RT were maximum and minimum in B<sub>1</sub> & B<sub>2</sub>; B<sub>3</sub> & B<sub>4</sub>; and B<sub>5</sub> & B<sub>6</sub>,

respectively.

Non significant differences were observed in mean Hb and PCV in group A. However, sub group A<sub>1</sub> showed significant increase in PMN percentage. The differences in haematology parameters in group B differed significantly among its various sub groups. The PCV, Hb and PMN % was maximum and minimum in B<sub>1</sub> & B<sub>2</sub>; B<sub>3</sub> & B<sub>4</sub>; and B<sub>5</sub> & B<sub>6</sub> respectively.

In group A, non significant differences were observed in between different sub groups of animals in mean serum sodium, potassium, phosphorus, chloride and calcium and the values varied within the normal physiological limits. A significant decrease occurred in mean serum sodium, potassium, phosphorus, chloride and calcium values in sub group B<sub>1</sub> in comparison to other sub groups.

A non significant difference was observed in case of PVP in group A. In case of PVP a significant decrease was observed in B<sub>1</sub> in comparison to B<sub>2</sub>, B<sub>3</sub>, B<sub>4</sub>, B<sub>5</sub> and B<sub>6</sub>. However the values of these parameters were within the normal physiological limit in case of group B and changes were not long-lasting. Significant decrease in SAP was recorded in sub group A<sub>1</sub> in comparison to A<sub>2</sub>; while sub groups A<sub>3</sub>, A<sub>4</sub>, A<sub>5</sub> and A<sub>6</sub> showed significant increase in SAP in comparison to A<sub>2</sub>. There were significant increase in SAP in sub groups B<sub>1</sub>, B<sub>2</sub> and B<sub>3</sub> in comparison to B<sub>4</sub>; while B<sub>5</sub> and B<sub>6</sub> showed significant increase in SAP in comparison to B<sub>4</sub>.

Mean values of P wave amplitude, duration, P-R interval, QRS complex interval, R wave amplitude and Q-T interval were not differ significantly in between different sub groups of animals of group A. A non significant difference was observed in P wave duration, P-R interval, QRS complex interval and R wave amplitude. However, a significant increase in P wave amplitude and Q-T interval were recorded in sub group B<sub>1</sub> in comparison to other sub groups of group B.

The dogs which belonged to sub group B<sub>1</sub> showed biphasic T wave, deep inverted T wave, sagging of S-T segment, flattening of T wave, variable R-R interval, low amplitude T wave, spiked and large T wave, peaked P wave in ECG tracings. These indicated hypokalemia and correlated well with the serum electrolytes findings in sub group B<sub>1</sub>. Sub group B<sub>2</sub> showed respiratory sinus arrhythmia. The dogs which belonged to sub group B<sub>3</sub> showed atrial flutter, variable R-R interval, saw tooth appearance of P wave, negative T wave and notched P wave which may be the indication of left atrial enlargement and chronic valvular insufficiency, and respiratory sinus arrhythmia. The dogs which belonged to sub group B<sub>4</sub> showed tachycardia with negative deviation of S-T segment which was an indication of hypoxia, and also showed sinoatrial block, ventricular premature complex (VPC) and electrical alteranans which may be the indication of pericardial effusion. The dogs which belonged to sub group B<sub>5</sub> showed variable R-R interval and typical Wenckebach phenomenon (Mobitz type I) for the non conducted P wave. The dogs which belonged to sub group B<sub>6</sub> showed respiratory sinus arrhythmia. The dogs which belonged to sub group A<sub>1</sub> showed sinoatrial block (Atrial stand still) which was an effect of xylazine in dogs. The dogs which belonged to sub group A<sub>2</sub> showed variable R-R interval, P waves of variable heights. The dogs which belonged to sub group A<sub>3</sub> showed S-A and A-V block that was also interpreted as an effect of xylazine-ketamine anaesthesia. QRS complex of variable amplitude, strikingly tall R waves that were reported to occur in left atrial enlargement and chronic renal hypertension.

In conclusion, it can be stated that among all the parameters studied, the cardiovascular irregularities were best manifested by monitoring of electrical activity of the heart and correlation of the findings with serum electrolyte values, especially serum potassium. Non invasive methods yield reliable data as far as blood pressure monitoring is concerned in canine practice. At least systolic arterial pressure can be measured with relative accuracy and its monitoring may help to combat conditions arising due to extremes arterial pressure. Cardiac condition disturbances can be diagnosed with relative ease using electrocardiography and in routine clinical practice, its use may enable to us timely diagnose and modify the therapeutic protocols for improved results.

### **PROJECT 15 - Studies on clinical anaesthesia in dogs with xylazine, ketamine and diazepam or midazolam and haloperidol tranquilization**

The study was conducted on 25 selected clinical cases of dogs of either sex, of various breeds and of widely different age group and body weights. Different anesthetic regimens are used according to condition of animal and the duration of surgical procedure to be performed.

The hematological parameters (hemoglobin, TLC and DLC) and biochemical parameters (serum glucose, SGOT, SGPT, and electrolytes were recorded

The changes in various parameters studied were largely of transient nature and reversible, hence the anesthetic protocols employed can be judged as safe for the patient.

Xylazine-ketamine anesthesia can be safely maintained by incremental doses of diazepam and midazolam in dogs. Ketamine-midazolam combination can be used safely for short duration surgical procedure. After incremental dosing, the duration of surgical anesthesia and total induction to recovery time was seen to be prolonged without marked

alteration in the physiological, hematological, biochemical and electrocardiographic parameters.

The result of this study revealed that haloperidol can serve as a tranquilizer in dogs for short and long duration of procedures and animal remain asleep during the recovery and can be used as an adjunct to local analgesia for minor surgical operations.

The various drug combinations used in the present study produced excellent surgical anesthesia which can be used in various clinicosurgical procedures for various duration of surgical interventions as has been also recorded in this study without any deleterious effect on any system and organ of the body.

### **PROJECT 16 - A study on comparative efficacy of antibiotic and tulsi leaf powder on the performance of commercial broilers**

A study was proposed to determine the effect of growth promoters like probiotics vis-à-vis TLP at graded levels on the growth, immune response, blood biochemical profiles, development of digestive organs and carcass traits of broilers. Two hundred twenty five day old commercial broiler chicks were procured. At the end of the first week, these chicks were weighed individually and randomly divided in to five groups, each consisting of three replicates and fifteen chicks in each replicate. The birds of the first group were fed on a basal diet supplemented with antibiotic Stafac 20 @ 50g/quintal of the basal diet. The second group birds were fed on a basal diet supplemented with 0.2% TLP. The third group was fed the control diet along with 0.5% TLP a control diet/ basal diet. The fourth group was fed the control diet along with 1.0% TLP. The fifth group was fed the control/ basal ration (22.5% CP & 2830 K cal/kg ME). The present investigation indicated that the feeding of 0.5% TLP supplement had a significant impact on the overall performance of the broilers. The results obtained in the present study indicate that the addition of 0.5% TLP to the diets of broilers may enhance immunity. Further, it was noted that 0.5% TLP supplementation improved the overall FCR of commercial broilers. Hence, it may be concluded that feeding of 0.5% TLP may elicit growth performance and immuno competence traits of commercial broilers.

### **PROJECT 17 - Effect of probiotic and herbal supplement on the performance of turkey poults**

Ninety day old commercial turkey poults were procured after having vaccinated against the Ranikhet disease (Fl Strain). At the end of the first week these poults were weighed individually and randomly divided in to three groups, each consisting of three replicates and ten poults in each replicate. The birds of the first group were fed on a basal diet supplemented with probiotic Biovet YC @ 50g/quintal of the basal diet. The second group birds were fed on a basal diet supplemented with herbal mixture (1% ambra pulp powder, 0.5% turmeric powder, 0.5% neem leaf powder). The third group was fed a control diet/ basal diet (28% CP & 2800 Kcal/kg). The present investigation indicated that the feeding of herbal supplements did not have significant impact on the overall performance of the turkey poults. This may be due to the fact that the diets were adequate in all the nutrients and also the birds were not in stress condition. However, the results obtained in the present study indicate that the addition of herbs to the diets of turkey poults may enhance immunity. Hence, it may be concluded that feeding of herbal supplement (0.5% turmeric powder, 0.5% neem leaf powder and 1% ambra pulp powder) may elicit the immuno competence traits of turkey poults. Further, it was noted that 0.5% TLP supplementation improved the overall FCR of commercial broilers. Hence, it may be concluded that feeding of 0.5% TLP may elicit growth performance and immuno competence traits of commercial broilers.

### **PROJECT 18 - A qualitative study on spent quail meat (bone-in) pickle and their storage stability**

In the present study, attempts were made to determine the proximate composition of spent quail meat and to access the suitability of acetic acid, lactic acid and vinegar for preparation of spent quail meat (bone-in) pickle. The standardized products after cooling were packed in two types of rigid packages (glass and PET) and stored at room temperature for further study. These were subjected to storage studies on 0, 30, 60 and 90<sup>th</sup> day of storage. After maturation analysis of samples were carried out for changes in physico-chemical, microbiological and sensory qualities during storage. The meat samples of spent quails were analyzed for its proximate composition and pH. It was found that combination of acetic acid in the pickle was found most suitable. In the present study almost negligible changes in the pH values of all these products were observed during 90 days storage period. The low pH values in the product were found suitable for safety and longer shelf life. TBA values were found increased with the increase in storage period and on an average it increased -3 folds than fresh product during 90 days storage. Among the package glass jars was evidenced with higher TBA value than PET jars. Moisture content of the products was found decreased with increase in storage period but fat, protein and ash contents were found increased with increasing storage period. It might be due to microbial action on the product. Microbial counts were increased with increase in storage period. Almost in all products treatment of the product was significantly affected by the storage period but no significant effect of package was observed during storage period. In general microbial counts in all the pickle products were well below threshold value of log 7.0/g. Thus we can say all the products were microbiologically safe and the microbial counts were almost below the permissible limit. Sensory scores of standardized

products for almost all the attributes slightly decreased except sourness with increases in storage period. Among the package no significant variation in the sensory scores of various pickle products were found. However, products stored in PET jars were scored slightly higher sensory scores in almost all attributes. In the production of one kg spent quail meat (bone-in) pickle cost of production for all combinations were found 286.02, 287.29, 289.34, 286.97 in product A, B, C and D respectively. It may be concluded that all four combination of acids used in present study were very well accepted by the sensory panelists but combination with acetic acid was found to be best. The standardized recipe for all these products was economic and products were found organoleptically better, microbiologically safer and shelf stable at room temperature for 90 days and PET jars was proved durable and convenient for pickle storage.

### PROJECT 19 - Studies on coccidian infections of sheep and effect on body weight

Coccidiosis is primarily, a disease of young animals, which causes considerable morbidity and even mortality and is considered of no less important than other infectious diseases. Huge unaccounted losses occur, resulting from reduction and/or spoilage of wool, meat and milk. Prevalence of coccidian infection in sheep was made, between the period from October, 2006 to February, 2007, through examination of 596 faecal samples, collected from Damodarpura (Sri Jagni Singh) and Aurangabad (Sri Bhavar Singh) near by villages of district Mathura. Out of 596 faecal samples examined 345 (57.42 %) were found positive for parasitic infections. Helminthic infections were found in 224 (38.31 %) faecal samples and coccidian infection in 208 (34.77 %). Highest coccidian infection was observed in October, 2006 (41.5%) and lowest in December 2006 (29.40%). The rate of prevalence varied in different age groups. Maximum infection (42.57%) was detected in the youngest age group (0 to 6 months).

In the positive cases, five emerial species were identified, on the basis of morphological study of their sporulated oocysts. Infection with a single species of coccidia was not detected. Mixed infections with other species of *Eimeria* was detected. The individual species prevalence was: *Eimeria ovina* (27.68%), *E. parva* (15.43%), *E. ovinoidalis* (11.07%), *E. intricata* (0.11%) and *E. faurei* (11.24%). Mixed infections involving two, three, four species were encountered. Sporogonic studies at different incubation temperatures (25°C, 30°C, 37°C, 40°C and 43°C ±0.50C, were made in respect of five coccidian species viz., *E. ovina*, *E. parva*, *E. ovinoidalis*, *E. intricata* and *E. faurei*. The favorable temperature for all the five species ranged, between 30°C and 37°C. The most optimum temperature being 37°C at which the sporulation was completed in minimum time. The thermal death point was 43°C at which no sporulation could occur.

An attempt has been made, to observe the effect of some physical (boiling water), and chemical (phenol and formalin) agents on the viability of coccidian oocysts of sheep at different periods of time. Amongst them, boiling water was found to be 100% lethal to coccidian oocysts. Phenol (Bengal Chemical) in concentration of 1% and 2% with exposure of 15 minutes or more and of 0.5% with exposure of one hour or more killed all the oocysts. The effect of formalin, surprisingly, had more or less no lethal effect even in 5% strength. For a full appraisal of the value of such agents, further studies on these lines with other physical and chemical agents have been stressed. Effects of coccidian infections on the body weight of sheep in naturally infected with mixed infection of *Eimeria* spp. (*Eimeria parva*, *E. ovinoidalis*, *E. faurei*, *E. ovina* and *E. intricata*) in sheep, were studied. There was gain in the body weight of treated sheep than that of sheep in the control group. The body weight of sheep after treatment revealed an increase of 1.21 Kg. The body weight in untreated sheep was -0.08 Kg. Average gain in body weight of treated sheep was higher by 1.29 Kg. than that of control (untreated) sheep. Gain of Rs 120.00 was recorded in treated sheep. In untreated sheep, there was loss of Rs. -9.60 only is due to coccidian infection. Net profit in terms of Rs 120.00 after treatment of sheep for coccidiosis @ 50 mg/ Kg body wt for 5 days. There is necessity of proper control and treatment of coccidiosis with anti coccidial drugs for insuring better returns from sheep, regularly. Effects of coccidian infections on the body weight of naturally infected lambs with mixed infection of *Eimeria* spp. (*Eimeria parva*, *E. ovinoidalis*, *E. faurei*, *E. ovina* and *E. intricata*) were studied. There was gain in the body weight of treated lambs than untreated lambs (control). The average body weight of lamb after treatment revealed an increase of 0.80 Kg. The body weight in untreated lamb was -0.10 Kg. Average gain in body weight of treated lambs was higher by 0.90 Kg. than that of control (untreated) lambs. Gain of Rs 83.50 was recorded after treatment of coccidian infection in lamb. Net profit in terms of Rs 83.50 after treatment of lamb for coccidiosis @ 50 mg/Kg body wt for 5 days.

### PROJECT 20 - Studies on epidemiology of mycoplasmal pneumonia in goats

The Mycoplasmas are known to be the infectious agents affecting many species of animals and produced a number of serious diseases of livestock and poultry. Among which diseases of respiratory tract viz. pneumonia (contagious caprine pleuropneumonia) in goats is responsible for a great loss to the Indian economy. During the course of this study a total of 1910 samples were processed for isolation of M/A from goats with different clinical history. Of 150 mycoplasmas and 42 acholeplasmas were isolated. The 38 samples were having the mixed infections. Overall 10.5% M/A prevalence was observed in the Barbari goats. The highest prevalence of M/A 15.84% was found from postmortem cases followed by 12.85% from goats with history of respiratory problem and 8.87% from slaughtered goats. The lowest prevalence 6.18% was recorded from healthy goats. Similarly, the prevalence was more in the winter 10.85 of dist. Mathura and Etah 10.63.

While lowest prevalence was observed 3.57% in summer in Agra and Hathras distt. Age wise the highest prevalence (52.6%) was observed in the age group of 6 Month while in age group of 6-12M was lowest (18.2%). The overall prevalence in relation to location was observed highest in Mathura district (31.2%) in comparison to Etah in which it was lowest(11.4%). In relation to breed it was highest in Non descript breed (34.7) than Jamunapari (28.2%). The 71 representative isolates having doubtful results on bio chemical tests finally identified with growth inhibition as *M. capricolum* subsp. capripneumoniae (12), *M. mycoides* subsp. capri (10), *M. capricolum* subsp. capricolum (1), *M. conjunctivae* (8), *M. mycoides* subsp. capri, (9), *M. ovipneumoniae* (3), *M. arginini* (10), *M. agalactiae* (4) and five of *M. bovis* (5), *A. axanthum* (6) and *A. laidlawii* (5).

- Of 134 sera samples, 8 sera samples from apparently healthy and 15 from pneumonic goat, from them isolation of *Mycoplasma capricolum* subsp. capripneumoniae (causative agent of CCPP) was done revealed titre range 1:128 to 1:256. Sero epidemiological analysis of sera samples in relation to district, breed and age was done by using ELISA test. Of 1181 sera samples 434 were found positive giving overall 36.7% prevalence against members of "Mycoides cluster" with different antigens. Polymerase chain reaction was used for 134 biological samples by using specific primers of *M. genus*, *M. mycoides* cluster and *M. capricolum* subsp. capripneumoniae. Of 134, 129 for *Mycoplasma genus*, 108 for "Mycoides culture" group and 81 for *M. capricolum* subsp. Capripneumoniae were found positive when screened by PCR test Antibiotic sensitivity of the all field strains of mycoplasma was carried out by using 6 antibiotics, Erythromycin, spiramycin, sparfloxacin, tylosin, enrofloxacin and tetracycline. Meep isolates were found very sensitive for erythromycin and tetracycline, sensitive for spiramycin and tylosin but were resistant for sparfloxacin and enrofloxacin.

In conclusion of the whole study that the mycoplasmas were highly sensitivity of to the external environment and close contact. Breed, sex and age appear to affect the epidemiology of CCPP viz. female non-descript breed kids are more susceptible than other breed, sex and age group.

### **PROJECT 21 - Evaluation of bioenhancer potential of *Moringa oleifera* leaves and flowers and their efficacy in ameliorating arsenic- and lead-induced toxicity in broiler chicks**

Bioenhancer potential of hot aqueous extract of *Moringa oleifera* leaves (MOLE) and flowers (MOFE), their safety and also the ameliorative potential against low dose arsenic- and lead-induced toxicity in broiler chicks, including its effect on production performance of broilers, haemato-biochemical parameters, oxidative stress indicators and histo-cellular architecture of vital body organs were studied. Results on production performance, haemato-biochemical parameters, oxidative-stress markers and histo-pathological studies revealed that the hot aqueous extract of *Moringa oleifera* leaves possessed considerable bioenhancer potential as it improved body weight of broiler chicks. *Moringa oleifera* leaves extract possess haematonic property as it increased blood haemoglobin and packed cell volume. The extract lowered the blood glucose levels, thus may be further investigated and exploited for future antidiabetic drug development. Apart from the ameliorative potential against arsenic- and lead-induced toxicity, it also holds promising hepatoprotective and immunomodulatory potential. Therefore, in view of the promising potentials enumerated above, further detailed investigation need to be taken up with particular reference to titration of dose including other extracts before it is recommended for inclusion in poultry feed as a constituent of poultry ration or as feed supplement.

### **PROJECT 22 - Pharmacological studies on involvement of potassium channels and second messengers in mediating beta<sub>2</sub> agonists-induced tocolysis and molecular characterization of Bk<sub>α</sub> channels in buffalo myometrium**

Salbutamol-induced myometrial relaxation is mediated mainly through K<sub>ATP</sub> channels, however, the involvement of BK<sub>α</sub> and K<sub>v</sub> channels could not be fully ruled out. Salbutamol-induced myometrial relaxation seemed to be NO<sup>-</sup> and sGC independent, either it is not involved or the level of cGMP is not sufficient to initiate the relaxant effect. However, further detailed studies are indicated using specific Gs activators. cAMP level increased in tissues following treatment with salbutamol but the levels probably were not sufficient to induce myometrial relaxation by itself alone. Therefore, the possibility of cAMP-dependent effect of salbutamol can not be fully ruled out.

The gene responsible for coding the  $\alpha$  subunit of the BK<sub>α</sub> channel in buffalo myometrium was characterized, amplified and the PCR product was found to be of 1097 bp thus suggesting the possible presence of  $\alpha$  subunit of the BK<sub>α</sub> channel; cloning and sequencing of the amplified gene was also undertaken.

### **PROJECT 23 - Evaluation of certain pharmacological activities of *Moringa oleifera* leaves extract with particular reference to immunomodulation**

Results of study on MOLE, the leaf extract of Moringa, it was evident that MOLE possesses haematopoietic

potential including its possible use in thrombocytopenia and anaemic. It possesses weak central but strong peripheral analgesic activity, but the moderate anti-inflammatory effect of MOLE seems to be of delayed type. It also possesses potent CNS depressant activity and possibly pentobarbitone-induced hypnosis seemed to be mediated through modulation of central neurotransmitters. Kidney and testes seemed to be most adversely affected by MOLE, however, other organs were not damaged to an extent of concern. Limited immunomodulation studies suggested that *Moringa* potentiated humoral immune response in experimental animals, but further, comprehensive study on modulation and expression of cytokine involved in the regulation of immune systems are required to be taken.



Con A stimulated splenocytes culture of control group



Con A stimulated splenocytes culture of MOLE (62.5 mg/kg) treated group



Con A stimulated splenocytes culture of MOLE (125 mg/kg) treated group



Formazone crystals formed within the splenocytes culture

### **PROJECT 24 - Biomonitoring of metallic pollutants and their impact on macro and micro-minerals and reproductive hormonal profiles in cows and buffaloes of Mathura**

Study was carried out to determine the levels of different metallic pollutants (arsenic, lead, cadmium and mercury), micro-minerals (copper, iron, zinc and selenium) and macro-minerals (calcium, magnesium and phosphorous) in various biological samples viz. blood, liver, kidney, rumen ingesta, rumen liquor, ovarian stroma, follicular fluid, allantoic fluid, amniotic fluid and soil, fodder and water collected from different locations. The levels of these minerals and metallic pollutants were estimated using Atomic Absorption Spectrophotometer and the reproductive hormones - progesterone and oestradiol with the help of ELISA kits.

Results revealed the accumulation of lead, arsenic and mercury in the body of animals and the possible sources of these may be environmental pollution. Lead, mercury and arsenic were high in liver, kidneys, ovarian stroma, follicular fluids and rumen ingesta of buffaloes. In comparison to maternal blood levels, concentrations of these metals in fetal fluids i.e. allantoic and amniotic fluids were much less. But their distribution into allantoic and amniotic fluids definitely suggest maternal to fetal transportation, of course to a limited extent. Buffaloes slaughtered at Mathura abattoir had high blood levels of iron and phosphorous while deficiency of zinc.

Buffaloes with dystocia had high levels of blood iron, molybdenum, cobalt and magnesium; and interestingly much higher calcium and deficiency of zinc was quite conspicuous. Dairy farm cows revealed high levels of iron, copper, cobalt, molybdenum and magnesium in blood while deficiency of zinc, selenium and calcium.

In Refinery village, buffaloes had high levels of iron, magnesium and selenium while calcium was deficient. Fodder from Refinery village area had high levels of selenium, iron, calcium, magnesium and phosphorous but it was deficient in zinc while soil of Refinery village area was very rich in iron, selenium, calcium and phosphorous but deficient in copper and zinc.

### **PROJECT 25 - Evaluation of the anthelmintic activity of some of the medicinal plants**

#### ***Moringa oleifera***

For first 6 h, there was 40% mortality of the *H. contortus* at concentration of 50mg/ml of hot methanolic extract. Thereafter, 50% mortality was observed in hot aqueous extract at 50 mg/ml concentration and cold methanolic extract at 50 mg/ml at 9 h. However, hot methanolic and cold methanolic extracts showed 100% mortality at 50mg/ml concentration at 12 h. After 18 h of exposure, even 100% mortality was observed at much lower concentration of 25 mg/ml of the hot methanolic extracts. The  $LC_{50}$  value was found to be lowest (9.37 mg/ml) for hot methanolic extract and highest for hot aqueous extract (16.64 mg/ml) followed by cold methanolic (14.17 mg/ml) at 12 h. The  $LC_{50}$  values of both the extract and of albendazole at 12 h were markedly lower compared to the corresponding values at 9 h and those at 18 h were much less compared to that at 12 h. Drug efficiency index was calculated in relation to the standard drug albendazole. The highest DEI was calculated at 12 h for *M. oleifera* hot aqueous extract (8.99) followed by cold methanolic (7.65), hot methanolic (5.06)

#### ***Melia azedarach***

*Melia azedarach* showed 50% mortality at 12 h at concentration of 50 mg/ml with hot aqueous extract. Further,

the methanolic extract of *Melia azedarach* exhibited 100% efficacy against the adult worms after 12 h of exposure at 50 mg/ml concentration while in aqueous extract, 100 per cent mortality was observed only at 18 h. The  $LC_{50}$  value at 12 h was much less in case of methanolic extract at (7.69 mg/ml) compared to that of aqueous extract (25.67 mg/ml). The DEI value of hot methanolic extract was less at both 9 and 12 h intervals i.e., 8.93 and 4.15 compared to the aqueous extract (19.26 and 13.87).

#### ***Vernonia anthelmintica***

At 6 h interval, methanolic extract of *Vernonia anthelmintica* seeds showed good anthelmintic efficacy at 50 mg/ml concentration. Compared to methanolic extract, the effect of aqueous extract was quite delayed as 100% adulticidal effect was observed at 50 mg/ml after 18 h whereas almost similar efficacy was observed at a much lower concentration (25 mg/ml) of the methanolic extract. Median lethal concentration value of the aqueous extract at 12 h was more (25.67 mg/ml) than the methanolic extract (8.27 mg/ml). At 12 h, the DEI value for methanolic extract was found to be almost one third (4.47) to that of the aqueous extract (13.87).

#### ***Chenopodium album***

Percent mortality data revealed *Chenopodium album* as excellent anthelmintic efficacy. Hot methanolic extract was more potent as 100% worms died within 12 h of exposure at 25 mg/ml concentration, however, the effect of hot aqueous extract was somewhat delayed and 100% mortality was produced only after 18 h of exposure. The  $LC_{50}$  value of *Chenopodium album* hot methanolic extract at 12 h interval was calculated to be much less (4.53 mg/ml) compared to hot aqueous extract (12.72 mg/ml). The DEI value of methanolic extract (2.44) at 12 h suggests it to be a potent anthelmintic while the DEI of aqueous extract was almost 3 times higher (6.87).

### **PROJECT 26 - Comparative disposition kinetics and interaction studies of ofloxacin and meloxicam in goats**

Disposition kinetic studies on ofloxacin (10 mg.kg<sup>-1</sup>) and meloxicam (0.5 mg.kg<sup>-1</sup>) in goats were conducted following a single IV, IM and SC administrations while only after intravenous route for interaction study between ofloxacin and meloxicam. Blood concentrations of both the drugs were determined using HPLC assay methods which were consistent and reproducible and the mean recovery was more than 90 per cent. Plasma concentrations versus time data were subjected to compartmental pharmacokinetic analysis using "PHARMKIT" software.

Pharmacokinetic studies of ofloxacin in goats revealed that this drug be administered to goats @ 10 mg/kg body weight and be repeated at 12 h interval by IV route followed by SC administration as it results in almost 100% bioavailability, rapid absorption and maintenance of blood levels for longer period. SC route should be preferred over IM route as the bioavailability from latter route is only 75.43%.

Plasma concentrations and pharmacokinetic determinants of meloxicam in goats following IV route and taking into considerations its preferential COX-2 inhibiting effect, at very low concentrations, the loading and maintenance doses of meloxicam for goats were calculated to be 1.77 and 1.56 mg/kg body weight, respectively and be repeated at 12 h, or 0.86 and 0.65 mg/kg and be at 8 h interval.

Absorption of meloxicam following IM administration from ventro-lateral aspect of neck was more rapid and better than from the dorso-lateral site as from the former site, the bioavailability value was conspicuously higher. For intramuscular administration, the loading dose and maintenance dose of meloxicam for goats were calculated to be 1.12 and 0.68 mg/kg, respectively and be repeated at 12 h interval. SC route is not ideal for meloxicam administration in goats as absorption is very poor and quite delayed.

Pharmacokinetic interaction between ofloxacin and meloxicam in goats even after IV administration is not substantive and thus may not warrant any change in the dosage regimens.

### **PROJECT 27 - Evaluation of certain pharmacological activities of *Nyctanthes arbortristis* flowers extract (NAFE) with particular reference to immunomodulation**

Yield of aqueous extract of *Nyctanthes arbortristis* flowers was 85.83% and the phytochemical studies revealed the presence of alkaloids, glycosides, sterols, terpenes, resin, reducing sugars, tannin and saponins in NAFE. Weekly body weight data of mice of control and NAFE treated for 21 days suggested anabolic and hepatoprotective while haematological studies suggested promising haematonic activity.

Anti-inflammatory/antiedema activities studies of NAFE on carrageenan-induced rat paw model revealed significant anti-inflammatory/antiedema activity of NAFE and the effect was almost comparable to that etoricoxib (10 mg/kg). Profound to significant decrease in the total COX activity was also evident. Studies with tail-flick analgesia method revealed central analgesic activity while inhibition of acetic acid-induced writhing by NAFE indicated peripheral analgesic activity. NAFE-induced analgesia against neurogenic pain may involve some other pathways.

Evaluation of forced locomotors activity revealed that NAFE alone at all doses failed to alter the forced locomotor



activity in treated mice, however, pretreatment of mice with NAFE followed by diazepam @ 4mg/kg by I/P route suggested that NAFE significantly potentiated the forced locomotor activity of mice. Evaluation of NAFE effect on spontaneous motor activity revealed significantly decrease in horizontal movements while there was no effect on vertical movements. Pentobarbitone- and ether-induced durations of sleep were significantly potentiated.

Conditioned avoidance response study in rats revealed that NAFE not only produced direct tranquilizing effect in rats but also potentiated the effect of diazepam. Evaluation of the anticonvulsant activity of NAFE in metrazole-induced chemo-shock seizures in mice revealed that NAFE not only moderate to markedly, but not significantly, delayed the onset of metrazole-induced seizures in mice but also enhanced the survival time of mice and the effect was almost similar to diazepam (4 mg/kg). Results of our study suggest anticonvulsant activity of NAFE but possibility such an effect of NAFE due to general CNS depressant effect can not be ruled out.

NAFE significantly augmented gastrointestinal motility in mice and the effect was almost comparable to that metachlopramide (2 mg/mouse). Evaluation of the local anaesthetic activity of NAFE 400, 800 and 1600 mg/kg concentration (100µl), intra-dermal revealed that NAFE possesses local anaesthetic activity almost comparable to that of xylocaine (1 mg/ml). Treatment of mice with NAFE (400 and 800 mg/kg body weight for 21 days resulted in marked to significant increase in the hepatomicrosomal protein compared to that in mice of control group. These observations suggest that NAFE possesses hepatomicrosomal protein induction effect.

Observations in the rats suggest that NAFE does not adversely affect the total protein profile but decreases globulin level definitely seems to be a cause of concern and needs further investigation. NAFE produced significant hyperglycemic effect in rats but at low dose (400 mg/kg) did not produce any effect on blood cholesterol or lipoprotein but at higher dose, NAFE produced significant hypercholesterolemic effect along with an increase in both the HDL and LDL cholesterol levels., thereby suggesting cardioprotective effect of NAFE while significant increase in LDL suggests increased risk of cardiovascular element. Therefore, further detailed studies should be undertaken. Our observation of significant decrease in SGOT and SGPT activity in NAFE treated group compared to those of control group rats suggest the hepatoprotective activity of NAFE.

Relative weights of different vital organ of body suggest that NAFE did not seem to adversely affect different body organs except some mild to moderate effect on liver and testis as revealed by detailed histopathological examination of different organs.

Humoral immune response studies in mice and rats using *Salmonella typhimurium* 'O' antigen with the help of tube agglutination test and ELISA test revealed an appreciable increase in serum antibody titre of NAFE treated groups. With ELISA test also, marked increase in serum antibody titre of mice of NAFE treated groups was observed, and the increase was statistically significant; thus indicating immunomodulatory potential of NAFE. Delayed hypersensitivity response studies in mice using DNCB revealed significant cell-mediated immune response in NAFE treated mice. Therefore, based on our findings, it may be inferred that NAFE possibly potentiates humoral immune response probably through T<sub>H</sub> cells. Ex- vivo and in- vitro splenocytes proliferation studies also suggested that *Nyctanthes arbortristis* possesses immunomodulatory potential. These observations are further supported by significant increase in IL2 and IL6 cytokines values in NAFE treated groups.

## **PROJECT 28 - Influence of exogenous melatonin on certain hormonal, enzymatic, biochemical and immunological profile in cyclic female Barbari goats**

Melatonin has been heralded as everything from snake-oil to miracle cure-all. Melatonin is the principal hormone of the pineal gland with a power to control many biological functions, particularly those that are controlled by the photo period and darkness.

Twenty-four female Barbari nannies of the age group between 2 to 3 years and weighing between 17 and 24 kg were grouped into four groups: two groups for studying haematology, biochemical and hormone profile; 1) control group given treatment for 10% ethanol as placebo and 2) melatonin treated group given subcutaneous injection of Melatonin @ 300µg per kg body weight per animal per day for 60 days at 16.00 hours. Other two groups for studying immunomodulatory effect of melatonin as 1) control receiving antigen with placebo and 2) experimental group treated with antigen and Melatonin as given for treated group above. From the results it can be concluded that melatonin help to ameliorate heat stress through compromising the energy metabolism adjustment demanded by the body at different environmental conditions. Melatonin did not alter the enzyme activity much, it may also be concluded that this hormone, melatonin did not have any pathological effect on the liver at the dose rate of 300µg/kg BW. The biochemical, hormonal and haematological process of the animal showed seasonal variations, influenced either by photoperiod, maintaining a steady correlation with circulating levels of melatonin.

Prolactin level is increased by melatonin treatment, thus causing anestrus in the animals. This can be suitably tailored for estrous synchronization programmes. Progesterone value recorded in the winter season reveals clearly the extreme function of luteal tissue. In the season the luteal phase appears to be prolonged under the influence of melatonin which leads to suggest that animals mated or inseminated artificially in the evening hour's stands a better probability of sustaining pregnancy and reduce embryonic mortality. Melatonin enhances the cellular immunity, but not humoral immunity in goats as recorded in this study.

### PROJECT 29 - Molecular characterization of Na<sup>+</sup>-K<sup>+</sup>-ATPase isoforms and their modulation by fatty acids in ovine pulmonary and coronary arteries

In the present study, we investigated the effect of fatty acids on the Na<sup>+</sup>-K<sup>+</sup>-ATPase in ovine pulmonary and coronary arteries employing biochemical, pharmacological and molecular biology techniques. Due to lack of information available on the molecular profile of Na<sup>+</sup>-K<sup>+</sup>-ATPase isoforms and their modulation by fatty acids in pulmonary and coronary arteries, this study was designed.

The molecular expression study of Na<sup>+</sup>-K<sup>+</sup>-ATPase isoforms was done with the help of RT-PCR and Western Blotting. To see the functional modulation of Na<sup>+</sup>-K<sup>+</sup>-ATPase by fatty acids, K<sup>+</sup>-induced relaxation of arterial rings in K<sup>+</sup>-free medium was elicited in ovine pulmonary and coronary arteries. The study of the inorganic phosphate generation was the assessment of Na<sup>+</sup>-K<sup>+</sup>-ATPase activity. Direct effect of EPA, DHA and arachidonic acid was observed on basal tone of these vessels. Also, the vasodilatory effect of these fatty acids was examined in both the arteries which were precontracted with 5-HT. Further, the effect of fatty acids on concentration-dependent contractions elicited with 5-HT was also examined. Enzyme linked immunoassay of cGMP was employed to establish a link between intracellular cGMP and the function of pulmonary Na<sup>+</sup>-K<sup>+</sup>-ATPase. Using RT-PCR, we detected the presence of  $\alpha$ -2 mRNA transcript in these vessels. Except ceramide, all the fatty acids inhibited Na<sup>+</sup>-K<sup>+</sup>-ATPase in both the vessels. They also caused vasodilation in vessels precontracted with 5-HT. Chronic exposure of the tissues to  $\omega$ -3 fatty acids in tissue culture inhibited the expression of  $\alpha$ -1 subunit of Na<sup>+</sup>-K<sup>+</sup>-ATPase. This was further confirmed by demonstrating inhibition of K<sup>+</sup>-induced relaxations of arteries in K<sup>+</sup>-free medium. Ceramide, a sphingolipid however had no effect on Na<sup>+</sup>-K<sup>+</sup>-ATPase. Inward rectifier K<sup>+</sup> channel had no role in KCl-induced relaxation in both the vessels which is assessed with the help of Ba<sup>2+</sup>, a specific blocker of K<sub>v</sub>. EPA-induced relaxation of the sheep pulmonary artery *in vitro* is primarily mediated by NO release from the vascular endothelium. Endothelium-independent relaxation by the fatty acid appears to involve both inhibition of extracellular Ca<sup>2+</sup> influx through L-type calcium channels.

### PROJECT 30 - Effect of *in vitro* and *in vivo* exposure of lead on adrenergic functions of vascular and non-vascular smooth muscles and its amelioration with *Withania somnifera* in rats

Main objective of the present study was to investigate the effect of *in vitro* and *in vivo* exposure of lead acetate on adrenergic receptors mediated responses of vascular and non-vascular smooth muscles and its amelioration by *Withania somnifera* root extracts (WRE) in rats. Study was conducted in two phases: *in vitro* and *in vivo*. The effects of lead acetate alone and in combination with WRE were assessed on the contractility of rat isolated portal vein and vas deferens. In case of *in vitro* study, lead acetate and WRE were added externally to the tissue bath fluid directly while in *in vivo* studies rats were divided in three groups (I, II and III) having twelve animals in each and were exposed to lead acetate (0.5% i.e. 2750 ppm Pb) or lead (0.5%) plus WRE (1.0%) in drinking water continuously for 12 weeks. In *in vitro* studies lead acetate and WRE were used at concentrations of 0.1-30 mM and 1 mg/ml, respectively. The  $\alpha$ -adrenergic receptors were possibly not involved in *in vitro* lead acetate-induced contractile responses on rat portal vein or vas deferens. Sub-chronic exposure of lead probably increased the sensitivity of  $\alpha$ -adrenergic receptors in portal vein and vas deferens by increasing the expression of the receptors. The electrical field stimulation-induced contraction of vas deferens were increased in this group of animals indicating augmented release of neurotransmitters from adrenergic nerve ending by lead, which was further supported by the increased levels of adrenaline and nor-adrenaline in plasma and brain in lead treated rats. The increased responsiveness of  $\alpha$ -adrenoceptors and augmented release of neurotransmitters from the adrenergic nerve endings might be one of the predisposing factors behind low dose lead exposure-induced hypertension. Significant patho-morphological changes in liver, kidneys, spleen and testes were also recorded in group  $\alpha$  animals suggesting that even at low doses, which did not show any untoward symptoms in rats, lead may damage the vital organs of the body. Treatment with the aqueous extract of *Withania somnifera* root significantly reduced these adverse effects of lead and decreased the levels of lead in blood and bone of lead-treated rats. Thus the plant may be recommended for therapeutic use in low dose lead exposure-induced hypertension especially to persons who have the risk of occupational health hazards due to lead.

### PROJECT 31 - Molecular epidemiology of Foot-and-Mouth disease with special reference to differentiation between infected and vaccinated animals

To successfully implement vaccination, thorough understanding of the molecular basis of pathogenesis and epidemiology of the disease is definitely a prerequisite. Molecular epidemiology based on nucleotide sequence data of infectious agents that has helped to a great extent in tracing the route and spread of any infectious disease in the past few years. During the study period, a total of 15 samples of vesicular epitheliums of tongue were collected from cattle and buffalo showing clinical signs viz., vesicle formation on the mucous membranes of the tongue, interdigital spaces, salivation and anorexia from Uttar Pradesh state. Of these, two were typed as FMDV type 'O', nine as FMDV type 'A' and

four as FMDV type 'Asia-1' by using indirect sandwich ELISA test. These data of results obtained were compared with the previous year's results available with the All India co-ordinated research project for epidemiological studies on foot-and-mouth disease, Regional Centre, Mathura, Uttar Pradesh; for determining the annual prevalence, seasonal occurrence of FMD virus type in the state. As per the record available, a total of 276 FMD outbreaks were recorded from different districts of Uttar Pradesh over the 8 years period from January, 2000 to December, 2007. Out of these, 139 were based only on the clinical signs, while 137 were confirmed by laboratory test (Indirect sandwich ELISA). Among the four serotypes prevalent in India, the greatest number of incidences were due to type O (48.91%), followed by type A (29.92%), type Asia-1 (21.17%), while no outbreak due to a type 'C' was recorded. It was also observed that the incidences of FMD outbreaks increased gradually following the post-monsoon period (August onwards). The greatest numbers of outbreaks were observed during the pre-winter to post winter season i.e. September onwards. The highest numbers of FMD outbreaks were in the month of April ( $6.14 \pm 3.06$ ), followed by in the month of February ( $5.14 \pm 3.06$ ), while least number of FMD outbreaks were observed in the month of June ( $0.86 \pm 0.70$ ). The highest number of FMD cases were found in South western semi-arid plain zone (191), followed by western plain zone (42), while the north eastern plain zone (02) had least number of FMD cases.

In the present study a total of ten recently collected samples (vesicular epithelium of tongue) of cattle and buffaloes of different parts of India were processed for virus isolation, sandwich ELISA and reverse transcription polymerase chain reaction (RT-PCR). Out of these samples, amplicon of 866 bp could be amplified from 3 specimens (IND 49/07, IND 195/07 and IND 196/07). In the present study, nucleotide sequence of 1D region for three FMD type 'A' viruses (IND 49/07, IND 195/07 and IND 196/07) isolated during 2007 was generated and compared with the rest of the previous isolates sequences available with the local database of Project Directorate on foot-and-mouth disease (PDFMD), Mukteswar, Distt. Nainital, Uttarakhand. For phylogenetic analysis of these recent isolates with Phylogenetic analysis was conducted using MEGA version 4. Tamura Nei (1993) model of nucleotide substitution with gamma-distribution of among-site rate heterogeneity (with 8 categories) (termed as TrN+G model) available in MEGA was used to construct the trees. The tree topologies were evaluated using 10,000 replicates of the data set. A divergence of more than 15% in nucleotide sequence distinguishes genotypes and strains which differ by less than 5% are considered to be closely related. In the Phylogenetic tree, all the field isolates of 2007 were grouped in genotype VII indicating the incessant supremacy of that genotype in the field in recent times, while the older vaccine strain IND17/77 and in-use vaccine strain IND 490/97 were grouped in genotype IV and VI respectively. In this study, the nucleotide (nt) divergence among the recent field isolates (IND 49/07, IND 195/07, IND 196/07) sequenced, vaccine strains (IND 17/77, IND 490/97) and other representative isolates (IND 258/99, IND 81/00, IND 270/03) were compared and found that nucleotide divergence between the recent isolates and vaccine strain (IND 490/97) is higher (22.0%) compared to that among recent field isolates (0.00%). The amino acid divergence among the field isolates (IND 49/07, IND 195/07 and IND 196/07) sequenced in this study and vaccine strains (IND 17/77, IND 490/97) and other representative isolates (IND 258/99, IND 81/00 and IND 270/03) was also compared and observed that amino acid divergence among the recent isolates and vaccine strain (IND 490/97) is higher (15.6%) compared to that among recent field isolates (0.00%).

The polyprotein of FMD virus can be divided into four elements: L, P1, P2 and P3. The P1 gene product is the precursor of the capsid proteins 1A, 1B, 1C, and 1D named viral proteins 1-4 (VP4, VP2, VP3, and VP1), while P2 and P3 are precursors to non-structural proteins, which are involved in virus RNA replication and protein processing. During FMD virus replication the entire protein-coding region of the genome is translated and the resulting polypeptide cleaves itself to produce structural capsid proteins (new virions), and non-structural proteins (NSPs). NSPs have a variety of functions associated with protein processing and altering host cell functions. During the present study a total of 470 sera of apparently healthy cattle from districts (Agra, Mathura, Gautambudh Nagar, Ghaziabad and Bulandsahar, where FMD control programme is going on since 2004) of Uttar Pradesh State were screened by using 3ABC-ELISA against 3ABC proteins. Out of 470 sera samples screened, 136 (28.93%) sera were detected as positive, 286 (60.85%) as negative and 48 (10.21%) as suspected. The sero-prevalence was highest in Mathura (52.13%), followed by Gautam Budh Nagar (47.87%), Agra (35.105), Buland Sahar (5.32%) and Ghaziabad (4.26%).

Finally, the present study sheds some lights on molecular epidemiological situation of the disease in India due to type A which is considered to be antigenically and genetically most diverse. Such continuous monitoring of the field strains help in selection of vaccine strain and evolving a proper control strategy for the disease in the future.

### **PROJECT 32 - Pharmacological evaluation of *Withania somnifera* (Ashwagandha) in normal as well as in pesticide toxicity in poultry**

Endosulfan (an organochlorine), Chlorpyrifos (an organophosphate), Deltamethrin and fenvalerate (synthetic pyrethroid), insecticides and ashwagandha (*Withania somnifera*) were selected for this study. All pesticides (at their sub lethal dose), ashwagandha (at their therapeutic dose) and pesticide + ashwagandha (at same dose rate) were administered in respective groups for 24 week in cockerels. All related parameters of clinical, haematobiochemical, hepatic microsomal metabolising enzyme, immunological and residual analysis in various visceral organs were recorded at 12 and 24 weeks intervals.

Cholinergic clinical signs such as mild salivation, lacrimation, diarrhea and mild hypothermia and a significant ( $P < 0.01$ ) reduction in body weight gain compared to untreated control were observed in all pesticide treated cockerels. Haematological studies revealed significant ( $P < 0.01$ ) decrease in TEC, TLC, lymphocyte, PCV and Hb in all pesticide treated cockerels. No alteration in TEC, TLC and PCV values was observed in pesticide + ashwagandha treated cockerels. A significantly ( $P < 0.01$ ) higher TEC, TLC and Hb values were observed in ashwagandha medicated cockerels after 24 weeks of medication as compared to pesticide treated and untreated cockerels.

Total serum protein concentration significantly declined both at 12 and 24 weeks in all pesticide treated cockerels as compared to other groups. No change in the albumin was observed in this study. Level of serum globulins was significantly lower ( $P < 0.01$ ) in pesticide intoxicated cockerels both at 12 and 24 weeks intervals. A significant ( $P < 0.01$ ) depreciation in serum glucose level of pesticide treated groups as compared to other groups was observed at 12 & 24 weeks. Pesticide significantly ( $P < 0.01$ ) increased the level of bilirubin, serum urea, serum creatinine, serum cholesterol after 12 & 24 weeks feeding. The serum calcium and serum potassium values are also significantly ( $P < 0.01$ ) increased in all pesticide intoxicated and pesticide + ashwagandha medicated groups. However, there is a significant ( $P < 0.05$ ) drop in serum sodium level in all pesticide treated as well as pesticide + ashwagandha treated groups at the same time levels.

AChE activity was significantly depressed in all pesticide treated groups (more in chlorpyrifos intoxicated cockerels) in comparison to control and ashwagandha medicated groups. Aminotransferases AST and ALT revealed a significant ( $P < 0.01$ ) elevation in pesticide intoxicated group both at 12 and 24 weeks in comparison to control and ashwagandha treated groups. There was no change in the activity of ALT and AST in cockerels fed on Pesticide + ashwagandha even after 24 weeks feeding trial. A significant appreciation in alkaline phosphatase activity was reported in group pesticide fed groups in comparison to other groups.

A significant ( $P < 0.01$ ) reduction in activity of hepatic microsomal enzymes, aniline hydroxylase, aminopyrene-N-demethylase and glutathione-S-transferase in PMS was observed in pesticide treated cockerels. However, there was no alteration in total protein content of PMS in this investigation. Activity of Cyt P<sub>450</sub> and b<sub>5</sub> was augmented significantly ( $P < 0.01$ ) in cockerels fed on pesticide and pesticide + ashwagandha medicated diet for 24 weeks.

Significantly ( $P < 0.01$ ) lower values of HA titre, DTH response and LST in pesticide treated cockerels revealed a immunosuppressive effect of the insecticide on humoral and cellular immunity of the cockerels. Ashwagandha treated cockerels, however, revealed significantly ( $P < 0.01$ ) higher HA titre, DTH response and LST in cockerels during 24 weeks trial.

A significantly higher level of pesticide residues was determined in pesticide treated than pesticide + ashwagandha treated cockerels after 24 weeks in this investigation.

### **PROJECT 33 - Treatment of bovine infertility using various hormonal combinations, ovulation synchronization protocol along with application of ultrasound for follicular dynamics, dominant follicle size and early pregnancy determination**

Treatment of bovine infertility using various hormonal combinations, ovulation synchronization protocol along with application of ultrasound for follicular dynamics, dominant follicle size and early pregnancy determination.

True anoestrus in bovine can be treated with reasonable success by combined progesterone and estrogen therapy. Oral progesterone @ 0.5mg/per animals per day for 14days and a single i/m injection of either 500 ug of estradiol benzoate or 5 to 10 mg stilboesterol dipropionate, 48 hr after the last day of progesterone feeding. This treatment induces ovulatory oestrus in nearly 80% of anoestrus bovines.

Single injection of PGF<sub>2</sub> has been found to be very effective (80%) for the treatment of subestrus in buffalo. Animals exhibits estrus with in 24-72 hr of treatment. Both single i/m injection of a luteolytic dose of PGF<sub>2</sub> or two injection given 11 days apart have been found effective for synchronization of estrus in cyclic cattle and buffaloes. Double injection schedule gives better oestrus synchrony and 15% increase in estrus response. Closed pyometra and post-partum endometritis can be successfully treated (66.7% response) with a single i/m injection of PGF<sub>2</sub>. The incidence of delayed ovulation was found to be considerably more in buffalo then in cattle. Thus while 24% buffaloes ovulated with in 24 to 48 hr after the end of estrus not a single cow ovulate late. Gn-RH administration at the time of A.I during early post-partum period improved 1st service conception rate of crossbred cows by nearly 70% in comparison to those inseminated during late post partum period. Superovulatory response in buffaloes was significantly lower than in cattle ( $6.33 \pm 0.35$  vs  $9.38 \pm 0.50$ ). Also, the recovery of total embryos ( $4.15 \pm 0.31$  vs  $7.46 \pm 0.66$ ) and viable embryos ( $2.23 \pm 0.23$  vs  $3.97 \pm 0.42$ ) was lower in buffalo. However, the fertilization rate was similar in the two species (73.7% vs 74.4%). Ultrasound studies revealed that parous cows and buffalo ovulate at a follicular diameter between 13-14.5 mm while heifer ovulates between 11.0-12.0 mm. AI can be made effective if animals reported in heat were examined through sonography prior to insemination. Ovsynch program gives best result in term of pregnancy rate when treatment starts at the follicular size of  $> 10$  mm. Use of progesterone releasing intravaginal device along with ovsynch did not have any effect on the pregnancy rate. The experiment gives better results in cows (80%) as compared to buffaloes (44.44%). Short term progesterone therapy (7day to 9 days) in combination with other hormones (estrogen @ 1mg, GnRH @ 20ug, PMSG @ 500mg) can be used for treatment of anoestrus in parous as well as heifers cows and buffaloes with pregnancy rate varying between 44.4% to 55%. Buffalo

placental tissue possesses oxytocin like substance which was proved by various tests viz boiling, trypsin digestion, incubation with sodium thioglycollate, test with specific oxytocin receptor blocker, specific oxytocin antagonist, and elution pattern through sephadex, specific RIA and through HPLC.

### **PROJECT 34 - Standardization and preservation of bovine, caprine and equine semen for genetic improvement of the respective breeds**

For cattle and buffalo semen frozen in 0.5 ml straws, a thaw rate of 55°C for either 8 seconds or 14 seconds given better motility, live sperm percentage than thaw rate of 35°C for either 12 or 50 seconds Buck semen can be successfully cryopreserved using egg yolk without removal of its seminal plasma. Caffeine help in protecting sperm cells better than ascorbic acid. Parallel samples under light and electron microscopy revealed that light microscopy ignore many acrosomal defects which could only be possible under electron microscopy. Bhadawari bull semen can be cryopreserved with approximately 60% post thaw progressively motile sperm in EY-Tris dilutor. Semen of Indian thorough bred horses was cryopreserved successfully in INRA 82 as basic dilutor using French medium straw. Even in the non breeding season the concentration was found to be higher and withstand cryopreservation. The mean sperm concentration was found as 217.43 ± 11.76 millions per ml in the breeding season, however, in non-breeding season it was found to be 273.66 ± 20.36 millions/ml. The Department is also engaged in treating various Gynaecological ailments of all the farm animals. The increase in the number of cases has rendered us to produce best technically trained graduate in the subject amongst the veterinary graduates passed every year in India. Furthermore, the Department provides best services to farmers in and around Mathura.

### **PROJECT 35 - Genetic studies on some economic traits of Sahiwal cattle**

The data for present study were collected from the government livestock farm, Chak Ganjaria, Lucknow, Uttar Pradesh, comprising performance record of 450 daughters from 1983 to 2006 sired by 40 bulls and having minimum 5 daughters under each sire. The least squares means of age at first calving, first service period, first calving interval, first lactation total milk yield and estimated as 1069.533 ± 7.639 (days), 274.109 ± 8.438 (days), 566.111 ± 8.550 (days), 6.266 ± 0.055 (Kg.), 1411.194 ± 17.756 (Kg.), 378.136 ± 4.596 (days), 1868.798 ± 32.954 (Kg.) and 3.122 ± 0.047 (Kg.)

The heritability estimates were worked out by paternal half sib correlated method. The heritability estimates for age at first calving, first service period, first calving interval, first lactation peak yield, first lactation 300 days milk yield, first lactation period, first lactation total milk yield and milk yield per day of first inter-calving period were found as 0.140 ± 0.011, 0.077 ± 0.016, 0.079 ± 0.018, 0.365 ± 0.148, 0.439 ± 0.159, 0.402 ± 0.154, 0.765 ± 0.201 and 0.578 ± 0.178 respectively. It may be concluded that for the selection of genetically superior Sahiwal cows age at first calving, first lactation peak yield and first lactation 300 days milk yield should be incorporated in a selection index.

### **PROJECT 36 - Role of semen additive in improving the keeping quality of buffalo semen on morphology of spermatozoa**

The present investigation was carried out for the evaluation of semen of Murrah and Bhadawari bulls, on the basis of important physical characteristics. In all, 66 ejaculate of two Murrah bulls and 61 ejaculates of two Bhadawari bulls were examined to study physical attributes of semen. Average ejaculate value was 2.89 ± 0.08 ml. and 3.35 ± 0.12 ml. for Murrah and Bhadawari bulls respectively. The present experiment was undertaken to compare the efficiency of extender viz- milk, D<sub>2</sub> and tris to know the extent of preserveability of buffaloes semen at refrigeration temperature. The Murrah semen with tris extender up to 48 hours of storage was significantly superior to the Bhadawari and Murrah semen preserved in milk or D<sub>2</sub> extender. The overall fertility rate was 32.77 percent. It was interesting to note that storage age of semen from first day of use to third day had no significant impairment in fertility with any of the treatment. Tris-egg yolk extender with cysteine hydrochloride is recommended for preservation of buffalo semen successfully at 4°C-5°C up to storage age of 48 hours.

### **PROJECT 37 - Evaluation of Sahiwal sires on the basis of early production performance of their daughter's**

The present investigation was carried out for genetic evaluation of Sahiwal sires by best linear unbiased prediction (BLUP) sire evaluation methods. The data were collected regarding first lactation performance of 485 Sahiwal cows for the period 1983 to 2006 maintained at Government Livestock farm, Chak Ganjaria, Lucknow. The heritability estimates for 90, 120, 150, 180 days part milk yield, peak yield, days to reach peak yield and 300 days milk yield were 0.129 ± 0.042, 0.145 ± 0.045, 0.237 ± 0.063, 0.303 ± 0.075, 0.384 ± 0.089, 0.365 ± 0.086 and 0.322 ± 0.078 respectively. All these estimates were medium in magnitude and significant. The estimated breeding values for peak yield ranged from 0.126 to 0.107 Kg. and for 90, 120, 150 and 180 days milk yield ranged from 36.860 to 29.934, - 36.096 to 32.218, - 50.096 to 28.667, and - 72.048 to 34.771 respectively and 28.527 to 25.368 for 300 days milk yield. On the basis of results it may be concluded that performance of daughters in their first lactation on the basis of yield and 120 days (4 months) milk yield may be used to select sires with good reliability rather than to wait 300 days or total lactation milk yield.

**V. EXTENSION**
**DIRECTORATE OF EXTENSION**

Extension is one of the most important activity of any state Agricultural or 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 in dissemination of scientific know how to the door steps of farmers and livestock owners through extension functionaries.

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 to animal owners and farmers.

During the period under report, Directorate promoted extension activities and arranged trainings, demonstrations, Kisaan mela and Kisaan goshties etc. In addition to the hands on training of ex-servicemen in routine animal husbandry and poultry production methods to encourage them to adopt these vocations after their retirement from defence services, several groups of farmers were imparted training on scientific lines for feeding, breeding, management and disease control in livestock and poultry.

**KRISHI VIGYAN KENDRA (KVK)**

KVK Mathura is the sole KVK of the University and most of the extension activities at village level are undertaken by KVK with the support of Veterinary faculty.

During the period under report, different types of trainings, OFT, FLD and other extension activities of KVK are briefly presented below :

Name of Discipline	TYPE OF TRAININGS																							
	On Campus						Off Campus			In Service For Extn. Pernis.			Sponsored											
	07-08		08-09		09-10		07-08	08-09		09-10	07-08	08-09		09-10	07-08	08-09		09-10						
	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P						
Crop Production	18	380	35	700	34	680	28	578	34	680	35	700	6	124	14	280	17	360	12	612	14	552	.	.
Horticulture	3	60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Livestock Prod.	8	163	11	160	13	183	23	312	19	287	16	239	3	93	3	200	4	284	17	260	17	1065	.	.
Plant Protection	12	241	23	662	18	360	18	371	18	360	23	451	7	140	5	100	9	180	12	612	14	552	.	.
Home Science	8	103	5	73	13	183	20	918	25	1153	25	1153	11	534	10	540	6	308	7	247	6	339	.	.

T = No. of Training

P = No. of Participants

**On Farm Testing (OFT) (2007-08 to 2009-10)**

Sl. No.	Discipline	No. of On Farm Testing		
		2007-08	2008-09	2009-10
1	Crop Production	3	2	3
2	Horticulture	-	-	-
3	Livestock Production	2	1	1
4	Plant Protection	5	2	2
5	Home Science	1	2	2
G. Total		11	7	8

**Frontline Demonstrations (2007-08 to 2009-10)**

Crop	2007-08		2008-09		2009-10	
	D	A	D	A	D	A
Bajra	10	5	20	5	16	5
Paddy	13	6.2	18	6.2	15	6.2
Til	10	5	20	5	15	5
Mustard	20	40	30	11.2	16	10
Wheat	13	6.2	12	5	13	6.2
Barley	9	4.2	-	-	-	-
Chilly	-	-	3	1.2	3	1.2
Cauliflower	-	-	-	-	3	1.2
Cabbage	2	0.8	-	-	-	-
Okra	-	-	3	1.2	-	-
Brinjal	-	-	-	-	-	-
Barseem	1	0.2	10	1	10	1
Potato	3	1.2	-	-	-	-
HS	10	-	-	0.5	10	-
Tomato	3	1.2	-	-	-	-

D = No. of Demonstrations

A = Area in HA.


**Other Extension Activities**

Sl. No.	Name of Activity	2007-08		2008-09		2009-10	
		N	P	N	P	N	P
1	Field days	4	207	12	630	11	557
2	Agri. Exhibition	6	1986	8	2720	8	2840
3	Farmers Fairs (Kisaan Mela)	5	2557	5	2670	5	2580
4	Gosthies	12	1170	14	1375	20	2240
5	Radio Talks	20	-	20	-	20	-
6	TV Talks	12	-	12	-	-	-
7	Extn. Material Produce	2500	-	2500	-	2500	-
8	Annual Magazine	500	-	500	-	500	-

N = No. of Activities

P = No. of Participants

**Kisan Mela**

Every year Kisan mela is organized by the University to attract the farmers and livestock owners to the University so as to disseminate the laboratory driven technology to the door-step of the end users. During the years 2008, 2009 and 2010, Kisan Melas were organized by the University during the months of February-March. The Melas were inaugurated by Prof. M.L. Madan and Prof. A.P. Singh, the respective Vice Chancellors during the report years. In every mela, more than 2000 farmers and livestock owners participated. The distinguished Guests of Honour during the inauguration and closing functions of the Mela have been Dr. N.P. Singh and Dr. M.C. Sharma, the Directors CIRG Makhdoom, Dr. M.P. Yadav, Vice Chancellor Sardar Vallabh Bhai Patel University of Agriculture and Technology, Meerut, Dr. P.N. Bhatt, Ex-Director IVRI and Ex-Animal Husbandry Commissioner, Govt of India, Dr. R.M. Acharya, Ex DDG (Animal Sciences), Dr. Kiran Singh, Ex DDG (Animal Science).



Release of "Brij mein Krishi Evam Pashupalan" - A publication of KVK, Mathura and free treatment camp for dogs and dog show were the special features of almost every mela which not only attracted farmers and livestock owners but pet owners too. Quality seeds of kharif crops and insecticides were made available to farmers on stalls of different agencies. During the concluding functions, every year, three progressive farmers and three best animal keepers were honoured. Best agriculture produce and animals exhibition were the other highlights of mela.



**VI. UNIVERSITY FARMS**

**Madhuri Kund Farm**

1396 acres land is available with the University at Madhuri Kund Farm; out of which 788 acres is under cultivation. This farm is more than sixty years old and most of the buildings and agricultural implements have lived their life. However, farm is an important asset of the University and also source of resource generation. Main limitation of the farm is lack of proper irrigation facilities and quality of soil which is alkaline in certain pockets. With the concerted efforts of the Director Farms and Dr. S.K. Sharma, Officer Incharge of Madhuri Kund Farm and the available limited resources, University undertakes fodder-seed production programmes from National Seed Corporation, U.P. Seed Corporation and certain other agencies. In spite of the limitation in terms of agricultural implements and equipments and also the trained human resource,



production performance of the farm has been satisfactory and increased over the years except during 2009-10.

In near future, the University envisages of setting up of a seed-processing plant at the Madhuri Kund Farm in an endeavor to directly market the quality fodder seeds to farmers which will not only directly serve the cause of farmers but will also be a source of revenue generation for the University.

SEED GRAIN PRODUCTION (in quintals)	2007-08	2008-09	2009-10 (tentative)
KHARIF	1784.73	1519.39	228.60
RAVI	4996.06	5964.87	4822.50
<b>TOTAL</b>	<b>6780.79</b>	<b>7484.26</b>	<b>5051.10</b>



#### Receipts in Cash and Kinds (Rs.)

CASH	76,22,518.00	75,40,985.00	59,52,904.00
KIND (Cost of Barley grains, straw and green fodder fed to farm livestock)	7,30,955.00	10,35,072.00	14,80,000.00
<b>TOTAL</b>	<b>83,53,473.00</b>	<b>85,76,057.00</b>	<b>74,32,904.00</b>



#### Poultry Farm

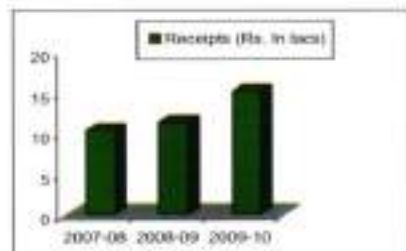
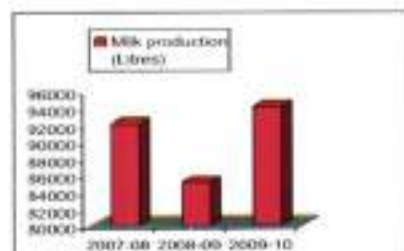
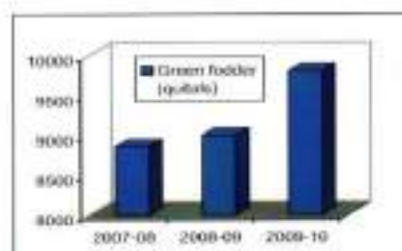
College of Veterinary Science and Animal Husbandry is having its own poultry farm in the Department of Poultry Science. On the Poultry farm, broiler chickens, quails and turkeys are being reared for teaching and research purposes. Students during the financial year 2009-10 were also encouraged to undertake "Earn while you learn programme" on the Poultry Farm.



#### District Dairy Demonstration Farm

Dairy farm of the University came into existence with the establishment of the erstwhile U.P. College of Veterinary Science in 1947 and the buildings of dairy farm are in a very dilapidated condition and some of the buildings have even been declared abandoned. With the financial support from ICAR during the year 2008-09 and 2009-10, some of the major repair and renovation works have been undertaken on the dairy farm including construction of boundary wall in a limited area. Pure Haryana, Haryana-cross, Murrah buffaloes and their offsprings are being maintained on the farm. Milk produced at the farm is supplied to students and employees.

Apart from production of milk, animals available at the DDD farm are being routinely used for teaching and research purposes on different aspects of animal health and production. About 110 acres of attached land to the DDD farm is used for production of grains, green fodder and wheat straw during different seasons of the year. Performance of the dairy farm during the years under report is depicted here :



**VII. HUMAN RESOURCE DEVELOPMENT**

Name of the Participants	Trainings / Seminar, Conference and Symposia
Dr. Jitender Kumar	16th Annual Conference of SAPI at COVSc, Gauwahati (January 8-10, 2007).
Dr. Udit Jain	Training programme of Sandwich ELISA and LPB ELISA organized by Project Directorate, FMD, at Mukteshwar, Nainital (May 22-26, 2007)
Dr. Udit Jain	7th Annual conference cum workshop "CME on Mycoplasma Infections - Economic Impacts and New Challenges" at S. N. Medical College, Agra (October 5-6, 2007).
Dr. Satish Kumar Garg	XXVII Annual Conference of Society of Toxicology, India held at Veterinary College, Hebbal, Bangalore (October 6-7, 2007).
Dr. Daya Shankar	Workshop on "Role of establishment of education technology cell in state agriculture universities" at NAARM, Hyderabad (October 18-20, 2007).
Dr. R. P. Pandey	Workshop on Role and Establishment of Education Technology Cells in SAUs at National Academy of Agricultural Research Management, Rajendra Nagar, Hyderabad (October 18-20, 2007).
Dr. Bharat Singh	III Annual Conference of UP Chapter of ISVS held at Veterinary College, Kumarganj, Faizabad (November 17, 2007).
Dr. Ajay Prakash Dr. M.M. Farooqui	XXII Annual Convention and National Symposium of IAVA held at College of Veterinary Science, Tirupati (November 21-23, 2007).
Dr. Satish Kumar Garg	VII Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology, held at College of Veterinary and Animal Sciences, Pookot, Kerala (November 28-30, 2007).
Dr. Daya Shankar	Awareness workshop on NISAG NET at IASRI (ICAR) New Delhi (Dec. 19-20, 2007).
Dr. Sarvajeet Yadav	17th Annual Conference of SAPI and National Symposium on current concept in productivity management in livestock and poultry environment, nutrition and stress, at GBPUAT, Pantnagar (February 7-9, 2008).
Dr. Aditya Kumar	Capacity building programme in intellectual property protection and technology licensing in agriculture under Indo-US Agricultural Knowledge Initiative, NAARM, Hyderabad (February 14-16, 2008).
Dr. Ajay Prakash	15th CVA Asian Regional meeting conference and workshop on concepts in Animal Welfare organized by Common Wealth Veterinary Association, World Society of Protection of Animals, London and Karnatka Veterinary Animal Fisheries Sciences University and Karnatka Veterinary Council held at Veterinary College Bangalore (February 22-24, 2008).
Dr. Udit Jain Dr. M. M. Farooqui	2 days training programme on "Techniques of Cytokine Assay" organized by Department of Microbiology and Epidemiology at DUVASU, Mathura (February 26-27, 2008).
Dr. Udit Jain	17th International Organization of Mycoplasma (IOM) Congress and Mycoplasma Technique Workshop, at Tianjin Medical University, Tianjin, China (July 6-8, 2008).
Dr. Amit Kumar	21 days training on "Phage display technology of single domain antibodies" at HAU, Hisar (September 25 - October 15, 2008).
Dr. Satish K. Garg	XXVIII Annual Conference of Society of Toxicology, India held at College of Veterinary and Animal Sciences at GADVASU, Ludhiana (October 16-18, 2008).

<p>Dr. Bharat Singh Dr. R.P. Pandey Dr. Gulshan Kumar Dr. Deepesh Kumar Dr. Prabha Katiyar Dr. Ajay Prakash Dr. M. M. Farooqui</p>	<p>IV Annual Conference of UP Chapter of Indian Society of Veterinary Surgery held at Veterinary College, Mathura (October 18, 2008).</p>
<p>Dr. Ajay Prakash</p>	<p>23rd Annual Convention of IAVA and National Symposium of IAVA held at College of Veterinary Sciences, Hisar (November 6-8, 2008).</p>
<p>Dr. Satish K. Garg Dr. A. K. Srivastava Dr. Rajesh Mandil Dr. M. M. Farooqui Dr. Jitender Kumar Dr. V. K. Singh</p>	<p>VIII Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology, held at College of Veterinary Sciences and Animal Husbandry, DUVASU, Mathura (Nov. 6-8, 2008).</p>
<p>Dr. A. K. Srivastava Dr. Sanjeev Kumar</p>	<p>Silver Jubilee Annual Conference of IAVP &amp; International Symposium &amp; satellite seminar" at IVRI, Izzatnagar (November 10-12, 2008).</p>
<p>Dr. A. K. Bhatia Dr. A. K. Srivastava</p>	<p>Global meet on "Veterinary public health 8th Congress of Association of Public Health Veterinarians" held at Lucknow (November 19-20, 2008)</p>
<p>Dr. A. K. Bhatia</p>	<p>National seminar on "Newer concept and strategies for disease diagnostics and immunoprophylactics for enhancing livestock health and production" at IVRI, Izzatnagar. (November 25-26, 2008)</p>
<p>Dr. Gulshan Kumar Dr. Deepesh Kumar</p>	<p>10 days short course on ultrasonography in Farm Animals, at CCSHAU, Hisar (December 2-11, 2008).</p>
<p>Dr. S. K. Dwivedi</p>	<p>21 days training on "Advanced molecular biology tools used in animal disease research and diagnosis" at IVRI, Izzatnagar (December 10-30, 2008).</p>
<p>Dr. Kuldeep Dwivedi</p>	<p>21 days Summer school on "Achieving dairy herd fertility objectives through integrated therapeutic and managemental practices" GADVASU, Ludhiana (January 9-29, 2009).</p>
<p>Dr. K. K. Chauhan Dr. Sanjeev Kr. Singh</p>	<p>National Seminar on Rural India Developmental Alternatives- Sectoral Convergence for Livelihood Security at CIRG, Makdoom (January 16-18, 2009).</p>
<p>Dr. Neeraj Shukla</p>	<p>Workshop on "Orientation of Project activities of DASP-II" organized by PIUAH under DASP project held at Lucknow (February 5-6, 2009).</p>
<p>Dr. H. N. Singh Dr. V. K. Singh Dr. K. K. Chauhan</p>	<p>National Symposium on Livestock Biodiversity conservation and utilization, lesson from past and future prospective at NBAGR, Karnal (February 12-13, 2009).</p>
<p>Dr. Prabha Katiyar</p>	<p>21 days training on "Ultrasonography and other diagnostic modalities for farm and companion animal" at GADVASU, Ludhiana (February 12 - March 04, 2009).</p>
<p>Dr. Sarvajeet Yadav Dr. Jitender Kumar Dr. Brijesh Yadav</p>	<p>18th Annual Conference of SAPI held at NIANP, Bangalore (February 26-28, 2009).</p>
<p>Dr. A. K. Srivastava</p>	<p>National Congress of Canine Practice and 6th Annual Convention of Indian Society for Advancement of Canine Practice and National Symposium on modern look on canine health care management in the global prospective at Kolkata (February 6-8, 2009).</p>
<p>Dr. Aditya Kumar</p>	<p>Forage symposium on Emerging trend in forage research and livestock production, CAZRI, PRS, Jaisalmer (Feb. 16-17, 2009).</p>
<p>Dr. Amit Singh Dr. Sanjeev Kr. Singh</p>	<p>National Seminar on Extension Education Congress - 2009 of Extension Perspective in Changing Agri-rural environment at C.S.A.U.A.&amp;T., Kanpur (March 5-7, 2009).</p>
<p>Dr. Atul Prakash</p>	<p>46th Congress of European Societies of Toxicology held at Dresden, Germany (September, 13-16, 2009).</p>
<p>Dr. M. K. Gupta Dr. Chandan Prakash</p>	<p>10 days training on "Advances in molecular diagnosis of important bacterial diseases of animals" at IVRI Izzatnagar (September 15-24, 2009).</p>

52 Faculty Members of DUVASU	National Seminar on "Dimensions of climate affecting education and research agenda for livestock health & production" & National Colloquy on "Quality deliverance of new undergraduate veterinary course curriculum" at DUVASU, Mathura (September 24-25, 2009).
Dr. A. K. Srivastava	"Interactive session with various stake holders of NIAW" held at National Institute of Animal Welfare, Ballbhgarh (September 9, 2009).
Dr. V. P. Singh	21 days Summer school on "Recent development in post harvest processing an value addition to livestock produce at CIPHET, Ludhiana (October 22 to November 11, 2009).
Dr. Ajay Prakash Dr. M.M. Farooqui Dr. Archana Pathak Dr. Prabhakar Kumar Dr. Varsha Gupta	XXIV Annual Convention of IAVA and International congress on Veterinary Anatomy at Hotel Taj Residency, Lucknow (November 4-6, 2009).
Dr. Gulshan Kumar Dr. Deepesh Kumar Dr. Vivek Malik Dr. Sanjay Purohit	33rd Annual Congress and International Symposium of ISVS at GADVASU, Ludhiana (November 11-13, 2009).
Dr. V. K. Singh	National Symposium on Conventional and New Age Breeding Technology for Livestock Centric Growth and Livelihood Security organized by Indian Society of Animal Genetics and Breeding at Madras Veterinary College ( November 27-28, 2009).
Dr. Neeraj Kr. Gangwar	21 days training on "Serological and PCR based diagnosis of economically important diseases of domestic animals" at IVRI, Izatnagar (November 10-30, 2009).
Dr. Amit Kumar	International Conference on Protecting Animal Health : Facilitating Trade in Livestock and Livestock Products & 24th Annual Convention of IAVMI at Raipur (January 27-29, 2010).
Dr. V. K. Singh	International Buffalo Congress on optimizing buffalo productivity through conventional & Noble Technology at NAAS, New Delhi (February 3-4, 2010).
Dr. V. K. Singh Sh. Rakesh Goel Dr. K. K. Chauhan	7th National Symposium on Challenges to Domestic Animal Biodiversity & Action Plan for its management and utilization at Anand Agriculture University, Anand ( Feb. 11-12, 2010).
Dr. Brijesh Yadav Dr. Dilip Kr. Swain Dr. Madhu Tiwari	21 days training on Advances in Stem Cell Research, at IVRI, Izatnagar (February 16 - March 7, 2010).
Dr. Atul Prakash	International Symposium on "Current Trends in Drug Discovery Research" at CDRI, Lucknow (February 17-21, 2010).
Dr. Sanjay Purohit	21 days training on "Diagnostic and Surgical Procedures in Veterinary Patients" at College of Veterinary Science, GADVASU, Ludhiana (February 18-March 10, 2010).
Dr. Sanjay K. Misra	21 days training course on "Novel diagnostic, preventive and therapeutic strategies in livestock and pet infertility" GADVASU, Ludhiana (Feb. 23 to March 15, 2010).
Dr. Amit Kumar	10th Indian Veterinary Congress and 17th Annual Conference of IAAVR at Jabalpur (March 10-11, 2010).
Dr. Sanjeev Kumar	21 days training on "Modern trends in veterinary vaccines and diagnostics for control of infectious diseases" at CCS HAU, Hisar (March 5-25, 2010).
Dr. M. Bhakat	21 days training on "Emerging Challenges in Animal Nutrition" at IVRI, Izatnagar (March, 5-25, 2010).
Dr. Atul Saxena Dr. Satish K. Garg Dr. R. P. Pandey Dr. Jitender Kumar	Seminar on fundamentals of IPR. Organized by UPCAR, Lucknow (March 05-06, 2010).

**VIII. TRAININGS / SEMINARS / CONFERENCES ORGANIZED****Gaushala Goshthi**

Mathura and whole of Braj area is known all over the country for its temples, livestock especially cows, milk products and gaushalas. Gaushalas are considered to be the place and last home for sick, weak, old and debilitated cows as these are organized and maintained by several religious groups and trusts. In most of the Gaushalas, there is no dearth of money as people donate lot of funds in the name of cow-worship, however, gaushalas need management and health care on sound scientific basis. Therefore, to disseminate the practical knowledge and sensitize and help the Gaushala Managers to adopt the latest techniques of animal husbandry, and for better management of cows and calves, one day Gaushala Goshthi was organized on 30-01-2008. During the inaugural programme, Prof. M.L. Madan, Hon. Vice Chancellor briefed the Gaushala Managers about the objective and need of the programme. More than 70 representatives from different Gaushalas from nearby area participated in the goshthi. On this occasion Sh. Pradeep Mathur, MLA Mathura and Sh. Sarदार Singh, EX.-MLA Gokul were the guests of honour.

**Training-cum-workshop on Cytokine Assay**

Department of Veterinary Microbiology organized two days "Training-cum-workshop on Cytokine assay" on February 26-27, 2008. Sixty young scientists and research scholars from different Veterinary, Medical, Biotechnology and other Life Science Institutes attended the workshop which was inaugurated by Dr. K.M. Bajarbaruah, Deputy Director General (Animal Sciences), ICAR. While speaking on the occasion, he emphasized the need for making paradigm shift from centuries old traditional practices to modern technology for improving livestock productivity. He further emphasized the need for hands on training to youngsters. Hon'ble Vice Chancellor, Prof. M. L. Madan, expressed his happiness on the organization of this programme as the participants of this training will carry a message from here about the developments taking place in this Institute. Dr. A. K. Bhatia, Organizing Secretary of the Workshop shared the basic objective of organizing this workshop. Key persons to deliver the lectures during workshop included Prof. V.D. Ramanathan, Head Department of Clinical Pathology, Tuberculosis Research Centre, Chennai, Dr. R.S. Chauhan, Joint Director CADRAD, IVRI, Izatnagar, Dr. Ravindra Sharma, Professor and Head, Veterinary Microbiology, HAU, Hisar and Dr. A. K. Srivastava, Professor and Head Veterinary Pathology from this Institute.

**Foot and Mouth Disease Control Meet**

Foot and Mouth Disease Control meet was organized by Dr. Sharad Yadav, Officer Incharge Veterinary Epidemiology Department on July 19, 2008. The meet was inaugurated by Prof. M.L. Madan, Hon'ble Vice-Chancellor DUVASU and Dr. Lal Kirshna, ADG (AH), ICAR was the Guest of Honour. In the meet, Dr. B. Patnaik, Project Director FMD and Officer Incharges of the eight Regional FMD Centres and two network units and Managing Directors/ General Managers of Intervet, Indian Immunologicals and Biovet participated. Annual progress and difficulties in FMD control programme were discussed to overcome the morbidity and mortality losses from this recurrent disease.

**Training on Advance Diagnostic Procedures on Genital Infections**

Under Niche Area of Excellence, Training on "Advance diagnostic procedures on genital infections" was organized in the University from 16<sup>th</sup> to 20<sup>th</sup> Sept. 2008 in which 11 Veterinary officers from the different parts of the UP participated. The participants were given hands on training on serological and molecular diagnostic procedures along with the

conventional methods like agglutination and precipitation for diagnosis of *Brucella*, *Mycobacterium*, *Bacillus anthracis*, *P. multocida* and other bacterial infections. During this programme, emphasis was also given on methods of collection, storage and transportation of specimen(s) to Regional Diagnostic Labs for proper diagnosis. During this programme, training-cum-protocol manual, staining kit and transport media were distributed to all the trainees.



#### **4<sup>th</sup> Convention of UP Chapter of Indian Society for Veterinary Surgery**

Department of Surgery and Radiology, organized 4<sup>th</sup> Convention and Seminar on "Affections of Mammary System in Bovine and Their Management" on October 18, 2008 which was inaugurated Prof. M. L. Madan, Vice Chancellor, DUVASU. About 60 teachers, scientists and practicing veterinarians attended the convention. Theme papers were presented by Prof. J. M. Nigam, Ex. Dean, Veterinary College, Palampur (HP), Prof. Harpal Singh, Ex. Dean PG, GBPUA&T, Pantnagar, Prof. Amresh Kumar, Ex. Dean, COVS, GBPUA&T, Pantnagar, and Dr. Krishna Pratap, Ex. Head, Division of Surgery, IVRI, Izatnagar. After thorough deliberations, it was recommended that clinicians should focus on the emerging challenges in large animal medicine and surgery. Using the minimally invasive surgical tools available now-a-days, newer and effective techniques should be developed to reduce the cost of treatment and post-operative complications due to surgical interventions.



#### **Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology (ISVPT)**

VIII Annual Conference of ISVPT and National Symposia on "Challenges, scientific validation and IPR protection of Indigenous medicinal plants based ITK" and Emerging risks to wildlife due to drugs and toxicants and ameliorative measures was organized by Department of Veterinary Pharmacology and Toxicology on November 6-8, 2008. The Conference was inaugurated by Dr. S. P. Tiwari, Deputy Director General (Education), ICAR, New Delhi and Prof. M.L. Madan, Hon'ble Vice Chancellor DUVASU presided over the function. Two hundred delegates from different Veterinary Institutes, DRDO, CSIR Laboratories, Contractual Research Organizations and Pharmaceutical and Equipment Companies attended the Conference. Souvenir-cum-Compendium of the Conference was released by the Chief Guest. On this occasion, a compilation of the Department "Department of Pharmacology-At a Glance" highlighting the major contributions and achievements of the Department was also released. Prof. J.K. Malik, President ISVPT delivered his presidential address while Dr. Satish K. Garg, Secretary General-cum-Organizing Secretary presented the annual report of the Society.

During National Symposium on Medicinal Plants, Scientists from Indian Institute of Integrative Medicine, Jammu, Central Drug Institute Lucknow, CIRG Makhdoom and other invited eminent speakers stressed upon the concerted efforts to protect centuries old Indian treasure of ITK and obtain patents for the same. Evening was marked by a colourful cultural programme presented by the students of University along with a professional troop who presented typical culture of "Braj", in which "Brijki Holi" and "Charkula" dance were the special attractions.

Symposium on "Regulatory Pharmacology and Toxicology" was the special feature of this Conference. Prof. Richard Goodman from University of Nebraska, USA delivered a lecture on "Genetically modified feed and food- a boon or bane for human and animal health". On the valedictory function, Prof. A.K. Srivastava, Hon'ble Director-cum-Vice Chancellor NDRI, Karnal was the Chief Guest and Dr. M.C. Sharma Director CIRG, Makhdoom, Mathura was the Guest of Honour. In his address Prof. Srivastava emphasized on quality improvement in research in Pharmacology and Toxicology and also to address the problems of myths in the society.



## National Seminar on Climate Change and National Colloquy on Quality Deliverance of New Under graduate Veterinary Course Curriculum

University Organized two days National Seminar on "Dimensions of climate change affecting education and research agenda for livestock health and production and National Colloquy on quality deliverance of under graduate veterinary course" on Sep 24-25, 2009. During the inaugural session Dr. S. Ayyapan, the then Deputy Director General (Animal Science and Fisheries) was the Chief Guest and Prof. M.L. Madan, Hon'ble Vice-Chancellor of the University presided over the function. Almost 70 Senior Veterinary professionals and academicians including Dean(s) of the several Veterinary Colleges and scientists from SAUs and ICAR Institutes participated in the seminar and deliberated on various issues related to climate change affecting animal health and production and veterinary education. National Colloquy on quality deliverance of veterinary course curriculum was inaugurated by Dr. John George, Advisor Department of Biotechnology, Govt of India in the gracious presence of Lal Krishna ADG (Animal Health), ICAR, New Delhi. Prof. G.S. Bhatia, former ADG (Education), Dr. S. Karim, Director CSWRI, Avikanagar, Dr. S.S. Rathore, Dean, Apollo College of Veterinary Sciences Jaipur, Dr. Simrat Sagar, Dean Veterinary College, GADVASU Ludhiana, Dr. N. H. Kelawala, Dean Navasari Veterinary College, Dr. D. B. Sarode, Dean, Dr. S. G. Narayankhedkar, Dean, Faculty of Veterinary Science, MAFSU, Nagpur and Dr. R. C. Upadhyay, PS, NDRI - Karnal were the eminent academicians who attended the National Seminar and Colloquy and deliberated on the issues.



## National Seminar on Recent Advancements on diagnosis of diseases in livestock and poultry

One day seminar on diagnosis of livestock and poultry diseases was organized by University on 20<sup>th</sup> Feb, 2010 with the financial assistance from State Animal Husbandry Department under ASCAD programme. More than one hundred Senior Veterinary Officers, Chief Veterinary Officers, Assistant Director from State Animal Husbandry Department and about 15 eminent speakers from SAUs, ICAR Institutes and Veterinary Colleges delivered their lectures and interacted with field Veterinary Officers. Hon'ble Vice-Chancellor Prof. Ambika Prasad Singh was the Chief Guest during inaugural function and Director U.P. Animal Husbandry, Dr. Rudra Pratap Singh along with Dr. D. Swarup, Director CIRG, Makhdoom Mathura were the Guests of Honour. The programme ended with the concluding function which was presided over by Dr. Satish Kumar Garg, Dean Veterinary College, DUVASU in the presence of Dr. R.N. Singh, Assistant Director, U.P. Animal Husbandry.



### Trainings Organized

Department of Veterinary Extension organized trainings on "Modern Diagnostic Tools for Treatment, Control and Eradication of Livestock Diseases" for twenty Veterinary officers and "Livestock Health Management and Extension Methods for Disease Control and Vaccination" for twenty Livestock Extension Officers under ASCAD scheme of Government of India from 01<sup>st</sup> - 10<sup>th</sup> Sep 2009.



In addition to this, training cum exposure visit for the Livestock Owners of District Kota, Rajasthan was organized on "Scientific Rearing of the Dairy Cattle for proper Health Management and Better Milk Production" from 23<sup>rd</sup> - 28<sup>th</sup> Feb 2010.

Trainings were also organized for farmers from the NGO - Forum for environment Agrotech and research organization, New Delhi, (28<sup>th</sup> July 2009), Jalon (17<sup>th</sup> August 2009), livestock farmers from Kota, Rajasthan (9<sup>th</sup> November 2009), Women farmers from Jaipur District (18<sup>th</sup> November 2009), farmers under ATMA programme from Gonda (05<sup>th</sup> January 2010), farmers by IFFCO ( 19-02-2010), Udham Singh Nagar, Uttarakhand (24-02-2010), Barmer (25-02-2010) and farmers from Bhind, Itawa, Rai Barielly and Kanpur during their visits to Veterinary University Campus Clinical Complex and Dairy farm for exposure visit and to gain knowledge in Animal Husbandry Practices, Livestock Production and for advanced Poultry Farming

### IX. UNIVERSITY PUBLICATIONS

Coordinator, Printing and Publication Division looks after all the printing and publication related works of the University and brings out all the University Publications which include University News Letters, Annual Progress Reports, Practical Manuals, Scientific Pamphlets, Pasudhan Patrika, Student's Handbook and compendium of different training programmes organized by the University from time to time.



### X. FINANCE AND BUDGET

(Rupees in Lacs)

Year	State Govt.			ICAR		University Receipts
	Plan	Non Plan	Total	Development Grant	Modernization of Farms	
2007-08	1202.40	735.95	1938.35	349.63	-	269.11
2008-09	286.37	560.35	846.72	340.06	146.00	292.65
2009-10	21.51	1067.72	1089.23	253.93	100.00	261.88



**XI. NEW INFRASTRUCTURE ADDED**

During the periods under report with the financial assistance of Rs. 160 lacs and Rs. 59.72 lacs from ICAR, the new buildings of Kisan Bhawan and KVK, respectively were built in the University. Kisan Bhawan was inaugurated by Dr. Mangla Rai, Secretary DARE and DG ICAR, New Delhi on 29 August, 2009 in the presence of Hon'ble Vice Chancellor, DUVASU Prof. M.L. Madan and other officers, teachers and employees of the University. During this function, Hon'ble DG addressed the faculty, staff and students of the University.

Kisan Bhawan is spacious enough to accommodate almost 100 people and a big conference hall with seating capacity of more than 300 persons. This Hall is being routinely used for various functions including conferences, seminars, and students activities. Dr. Mangal Rai, while taking a round of the facilities, expressed his great satisfaction on the design and facilities available in Kisan Bhawan for the farmers.

Newly constructed Krishi Vigyan Kendra building was inaugurated on 15<sup>th</sup> August, 2009 by Prof. M.L. Madan, in the presence of all the officers, teachers and students of the University. Earlier the KVK was housed in the old building of erstwhile College of Veterinary Science and Animal Husbandry which was in a very dilapidated condition. Newly constructed Kisan Bhawan has sufficient facilities for the offices of different Subject Matter Specialists (SMS) and a big meeting hall where almost 80-90 farmers can be addressed at one time. This Hall is being routinely used for addressing the farmers on various occasions.

With the financial assistance of Rs. 33.40 lacs by ICAR, New Delhi, the department of LPM was relocated, renovated and established near the stable so to provide adequate space and facilities for teachers, students and staff.

Facilities in Teaching Veterinary Clinical Complex have been further enhanced with the addition of a spacious disease diagnosis lab in which 10-12 students can be trained at one time. In addition, certain basic amenities for boys and girls have also been provided.



**Dedication of New Campus in the service of Veterinary Education and Research**

With the financial support from State Government for establishment of University, buildings for four new proposed Colleges, Administrative Block, three students hostels and residential Complex has been constructed. The administrative block was inaugurated by His Excellency Sh. T. Rajeshwar, the Governor of U.P and Chancellor of the University in the gracious presence of Sri Awadh Pal Singh Yadav, Hon'ble Minister of Animal Husbandry and Dairying, Dr. T. Ramasami, Secretary DST, Govt. of India, Shri G.B. Patnayak Principal Secretary His Excellency, the Governor & Chancellor, Prof. M.L. Madan, Vice-Chancellor, DUVASU Mathura. However, the central offices of the University were shifted to the new Administrative Building after 15<sup>th</sup> of August 2009, when the "New Campus" of the University was dedicated in the service of Veterinary education and research by Prof. M.L. Madan, Vice-Chancellor, DUVASU Mathura on 15<sup>th</sup> August, 2009 in the presence of faculty members and staff of the University.



**Renovation of Laboratories of Different Departments**

During the years under report, different laboratories in the Department of Veterinary Pathology, Physiology, Parasitology, Pharmacology, Medicine, Parasitology, Extension, Animal Genetics and Breeding were renovated in an attempt to give these laboratories a modern look and also to strengthen teaching and research facilities.

## Inauguration of College of Biotechnology Building

College of Biotechnology building was constructed with the financial support of U.P. State Government. The building was inaugurated by Dr. John George, Advisor, Department of Biotechnology, Govt. of India on 25<sup>th</sup> September, 2009 in the gracious presence of Dr. Lal Krishna, ADG (Animal Health) and Prof. M. L. Madan, Hon'ble Vice-Chancellor of the University and other Officers and Faculty Members of the University.



## Renovation of Lecture Theatres and University Main Gate

With the financial assistance from ICAR, two of the very old lecture theatres located in the Department of Anatomy and Administrative Block were extensively renovated and converted to modern lecture theatres with multi-media projector facility to make teaching more effective. The main entrance gate of the University was also rebuilt to give a face-lift to the entry point of University and It was inaugurated by Prof. M. L. Madan, Hon'ble Vice Chancellor, DUVASU on 18 Feb., 2008.



## XII. OTHER HIGHLIGHTS AND ACTIVITIES

### First DUVASU Convocation

First convocation of the University was held on February 24, 2009 in the main ground in front of Administrative Block of Veterinary College. Whole of the University Campus took a festive look with the staff, students and faculty members bubbling with enthusiasm and joy.



Dr. Rajesh Nigam, Registrar of the University led the Academic Procession in which apart from the Members of Academic Council and Heads of Departments, gracious presence of H.E. Sh. T. V. Rajeswar, the Governor of UP and Chancellor of the University, Dr. T. Ramasami, Secretary DST, GOI, the Chief Guest, Sh Awadh Pal Singh Yadav, Hon'ble

Minister of Animal Husbandry and Dairying, Sh. G. Patnaik, Principal Secretary to H.E. the Chancellor and Prof. M.L. Madan, Hon'ble Vice Chancellor was the main attraction. Programme started with the presentation of "Saraswati Vandana" and "University Song" by the students of University.

Postgraduate degree recipients for PhD and MVSc degrees were presented before the Hon'ble Chancellor for admitting the respective degrees by Dean Postgraduate Studies, Dr. Satish K. Garg while the graduate degree recipients were presented by Dean Veterinary College, Dr. S.D. Sharma for admitting the degree of BVSc&AH. Out of a total of 230 students, 12 students received PhD degree, 141 MVSc and 77 BVSc&AH degrees. On this occasion, 21 medals were also awarded by H. E. the Chancellor of the University and Vice Chancellor for outstanding scholastic achievements of graduates and post-graduates.

Prof. M.L. Madan, Vice Chancellor presented the University Report, the "First Convocation Address" was delivered by Dr. T. Ramasami, Secretary DST and H.E., Sh. T.V. Rajeswar, the Chancellor of the University, delivered his presidential speech and there after, the convocation was declared closed. The Programme ended with the National Anthem and the Academic Procession left the Convocation Pandal amongst the chanting of Shalokas.

### Independence Day Celebrations

DUVASU every year celebrates Independence Day of India with lot of fervor and gaiety. During the years under report, programme was marked by hoisting of the National Flag and paying floral tributes to Father of the Nation by Prof. M. L. Madan, Hon'ble Vice Chancellor along with all the officers, teachers, employees and students in the main lawn of the University. Speech and patriotic songs competition were organized for the students. Few samplings were also planted in front of the Administrative building. A friendly volley-ball match between staff and students were also organized.



### World Veterinary Day

World Veterinary day is celebrated by the University on last Saturday of April every year. The programme in the morning is marked by free vaccination and treatment camp in the Veterinary Clinical Complex and during the years under report, the programme was inaugurated by Prof. M.L. Madan, Worthy Vice Chancellor of the University. In the afternoon, some dignitary from outside were invited to interact with the Faculty and students and lectures are delivered on topics of interest to human and animal health. During 2008 WVD celebration, Lt. Gen. Sh. Tejinder Singh, GOC HQ-1 CORPS was the Chief Guest. He was escorted to the venue by NCC cadets and Horse riders. On the arrival of Chief Guest along with Prof. M.L. Madan and other guests in the Conference, dignitaries on the dias were welcomed by Secretary Faculty, Dr. Satish K. Garg. Thereafter, Prof. Madan, Hon'ble Vice Chancellor delivered a theme lecture on "Veterinarian and Society" and apprised the people that the association between man and animals has been very vital even from prehistorian times. Today, Vets are playing-a pivotal role not only in sustaining global economic recession but also enhancing National GDP.



### Orientation Programme for the New Entrants

Every year, Orientation Programme for the newly admitted students to BVSc & AH 1st year students is organized with the objective of familiarizing the students with campus, Mathura city, course-curriculum, extra-curricular activities, do's and don't at the Campus. The Programme is coordinated by Dr. M. M. Farooqui, Dean Student Welfare. During the years 2007 and 2008, the students were welcomed by Dr. S. D. Sharma while 2009 by Dr. Satish Kumar Garg, Dean of the College. Later, Senior Professors and Heads of Departments and other faculty members delivered their lectures and interacted with the newly admitted students. Students also visited different Departments. A feed-back from students about the orientation programme was also taken.



### University Foundation Day

University Foundation day is celebrated on 25<sup>th</sup> of October every year with lot of enthusiasm. In the morning, free vaccination camp for pets and free treatment camp for large animals is organized in the Teaching Veterinary Clinical

Complex. During the years 2007 and 2008, free clinical services camp was inaugurated by Prof. M.L. Madan, Hon'ble Vice Chancellor. Thereafter, to create an awareness amongst livestock- and pet owners, students and employees of the University, lectures of relevance to common man are organized. During 2008, lecture on Rabies and its control measures was delivered by Dr. Sharad Yadav, Associate Professor Epidemiology and in the afternoon, Prof. Madan delivered a lecture on "Environmental Pollutants and Society". During the year 2009, apart from other activities, plantation was done by the officers of the University in front of the Teaching Veterinary Clinical Complex.

### Republic Day Celebrations

DUVASU every year celebrates Republic Day of India with lot of fervor and gaiety. During the years under report, programme was marked by hoisting of the National Flag and paying floral tributes to Father of the Nation by Prof. M. L. Madan, Hon'ble Vice Chancellor along with all the officers, teachers, employees and students in the main lawn of the University, while during 2010, National Flag was unfurled by Prof. Satish K. Garg, Dean, Veterinary College. Speech and patriotic songs competition were organized for the students. Few samplings were also planted in front of the Administrative building. A friendly volley-ball match between staff and students is always an event of special attraction.



### Fresher's Day for the New Entrants

Fresher's Day to welcome the newly admitted students to University fraternity is celebrated every year. During the years 2007, 2008 and 2009, these programmes were organized during the first month after the commencement of classes of the respective academic sessions by the students of BVSc & AH IInd year under the supervision and guidance of Dean Students Welfare, Hostel Wardens and Cultural Secretary of the University. Senior students extended a very warm welcome to the newly admitted students. This function also provides an opportunity to the University to search the talented students amongst the new entrants as they present skits, mono-actings, solo-songs, group-songs and play etc. During the years 2007, 2008 and 2009, Ms. Priya Gupta and Vijay Kumar, Ms. Priya Darshna Rao and Rajesh Kumar and Mithlesh Shukla were adjudged as Miss and Mr. Fresher, respectively. On the concluding functions, Hon'ble Vice chancellor, Prof. M.L. Madan blessed the students and presented the awards to the winners.



### Oath Taking Ceremony

On completion of five years of BVSc & AH degree programme including their internship, students are administered the Hippocrates professional oath to serve the deaf and dumb animals, the poor section of the society as livestock owners and farmers and also to upgrade their professional knowledge and competency skills. During the academic session 2006-07, 2007-08, 2008-09, the students were administered the professional oath by Prof. M.L. Madan the Hon'ble Vice-Chancellor of the University. On this occasion, the toppers of the batches, namely - Drs. Raj Kumar Yadav, Abdul Alim Ansari and Preeti Pandey received P.G. Pandey Memorial Gold Medals for having secured the highest marks in Veterinary Pathology during BVSc & AH degree programme.



### Forth Coming New faculty

From the academic session 2010-11, University is going to start the M.Sc. Biotechnology degree programme in College of Biotechnology under self-finance scheme. The College will admit 25 students per annum. University envisages of starting PhD programme in Biotechnology College from the academic session 2011-12. For the smooth and effective running of this College, human resource and technical facilities available in the CIRG, Makhdoom Mathura will also be utilized.

## XIII. RESEARCH PUBLICATIONS

## A. National and International Journals

- A.K. Bhatia, and Sandeep Bhatia (2007). Recombinant phase display antibody technology an alternative to hybridoma for antibody production. *J. Immunol. Immunopathol.* **8(2)**: 68-74.
- A.R. Choudhary, M.M. Farooqui and Chandra Pal (2007). Histological and histochemical studies in the meta nephros of goat (*Capra hircus*) in prenatal period-excretory part. *Indian Journal of Small Ruminants.* **13(2)**: 195-198.
- A.R. Choudhary, M.M. Farooqui and Chandra Pal (2007). Morphological studies on the metanephros of goat (*Capra hircus*) in prenatal period-excretory part. *Indian Journal of Small Ruminants.* **13(3)**: 217-220.
- B.C. Pal and U. Jain (2007). Experimental study of Mycoplasmal arthritis in sheep and goats. *Haryana Veterinarian.* **46**: 92-93.
- Gagan Garg, D.K. Sharma, R.D. Agrawal, and P.K. Rout (2007). Protective response of immunization with low molecular weight protein and crude antigen of *Haemonchus contortus* in Barbari goats. *Indian J. Anim. Sci.* **77(7)**: 538-543.
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- Alok Jain, Aditya Kumar and PK Pankaj (2007). Effect of graded level of dietary phosphorus supplementation on fermentation and biochemical profiles in Barbari kid. *Indian J Animal Production & Management* **23**: 56-61.
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- S.V. Singh, AV Singh, R Singh, S Mishra, N Shukla, PK Singh, JS Sohal, S Sharma, H Kumar, PK Patil and KS Sandhu (2007). Real time estimates of seroprevalence of Johne's disease in form goatherds in North India using indigenous ELISA kit and faecal culture. *Indian Journal of Animal Sciences.* **77(11)**: 1074-1079.
- S. Bhatia, A.K. Bhatia, Richa Sood, B. Pattnaik and H.K. Pradhan (2007). Serological evidence of bovine immunodeficiency virus infection in cattle and buffalo through use of recombinant capsid (P26) protein based immunoassay. *J. Immunol. Immunopathol.* **8(2)**: 137-138.
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- V. Malik, and B. Singh (2007). Clinical and haematobiochemical studies on ketamine and its combinations with diazepam, midazolam and xylazine for general anaesthesia in horses. *Indian J. Vet Surg.* **28(2)**: 128-129.
- V. Malik, and B. Singh (2007). Comparative evaluation of butorphanol xylazine, ketamine and diazepam combinations for general anaesthesia in horses. *Indian J. Anim. Sci.* **77(11)**: 1121-1123.
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- Vidya S. Singh, P.P.S. Chauhan, R.D. Agrawal and Daya Shanker (2007). Efficacy of Dewormin against Strongyle nematodes in naturally infected buffalo calves. *J. Vet. Parasitol.* **21(2)**: 77-78.
- Yashvant Singh, Daya Shanker and Rajesh Katoch (2007). Efficacy of ivermectin against strongyles in Kathiawari horses. *Vet. Practitioner.* **8(2)**: 157-58.
- A. Goel, D. Kumar and A.K. Bhatia (2008). Modulation of immune responses by aqueous extract of *Argemone mexicana* leaves. *J. Immuno. Immunopathol.* **10(1)**: 65-69.
- Amit Kumar Verma, B.C. Pal, C.P. Singh, U. Jain and S.K. Yadav (2008). Studies on the outbreaks of foot and mouth disease in Uttar Pradesh between 2000 and 2006. *Asian Journal of Epidemiology.* **1(2)**: 40-46.
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- Ambika Sharma, Ashish Kumar, Ashok Kumar and Kranti Dev (2008). Cloning and characterization of Goat cathelicidin cDNA. *Indian J. Vety. Res.*, **17** (1): 13-20
- C. P. Singh, Amit Kumar Verma and B. C. Pal (2008). Prevalence of Protected animals against FMD in Uttar Pradesh, India. *Haryana Veterinarian*, **47**: 107-109.
- SV Singh, AV Singh, R Singh, S Sharma, N Shukla, S Mishra, PK Singh, JS Sohal, H Kumar, PK Patil, P Mishra and KS Sandhu (2008). Seroprevalence of Bovine North India using indigenous ELISA kit based on native Mycobacterium avium and subspecies paratuberculosis 'Bison type' genotype of goat region. *Comparative Immunology, Microbiology and Infectious Diseases*, **31**: 419-433.
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- Archana, R.S. Katiyar, D.N. Sharma and M.M. Farooqui. (2008). Gerontological studies on the gross and histomorphology of the vesicular gland of Gaddi goat (*Capra hircus*). *International Journal of Morphology*, **27**: 13-20.
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- Arpita Mohan and Satish K. Garg (2010). Pharmacokinetics of ciprofloxacin in calves following a single intramuscular and subcutaneous administration. *Indian Journal Animal Sciences*, **80**: 401-404.
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- Soumen Choudhury, Satish K. Garg, Thakur Uttam Singh and S.K. Mishra (2010). Cellular coupling of potassium channels with beta2 adrenoceptors in mediating myometrial relaxation in buffaloes. *Journal of Veterinary Pharmacology and Therapeutics*, **33**: 22-27.
- Thakur Uttam Singh, K. Kathirvel, S. Choudhury, Satish K. Garg and S.K. Mishra (2010). Eicosapentaenoic acid-induced endothelium-dependent and independent relaxation of sheep pulmonary artery. *European Journal of Pharmacology (Cardiovascular Pharmacology)*, **636**: 108-113

## B. Abstract Published during Conferences/Symposia

- A. Goel, D. Kumar and A.K. Bhatia (2007). Antibacterial activity of *ocimum sanctum* leaves extract in rats. Symposium on Present status of Scientific and Technological Interventions on the development of Medicinal and Aromatic plants in India. Bidhan Chandra Krishi Vishwavidhyalaya, Kalyani, West Bengal. (April 26-28, 2007)
- Ajay Prakash and G. Chandra (2007). Histological observations on the mucosa and submucosa of ileocecal junction in colostrum fed and milk fed kids (*Capra hircus*). XXII Annual Convention of IAVA and National Symposium held at Department of Anatomy, Veterinary College Tirupati, A.P. (Nov. 21-23, 2007)
- A. Singh, SK Yadav, BC Pal, A Verma and S Nirwan (2007). Sero-prevalence of Foot and Mouth Disease virus in cattle and buffaloes poster presented in National Symposium on Animal Welfare and sustainable health through recent therapeutic and disease management strategies at College of Veterinary and Animal Sc., Pantnagar- 263145, US Nagar Uttarakhand, India. (Feb. 26-28, 2007).
- M.M. Farooqui, Chandra Pal, Raja Ram and R.S. Katiyar. (2007). Histological and histochemical studies on the epididymis of prenatal goat (*Capra hircus*). XXII Annual Convention of IAVA and National Symposium held at Department of Anatomy, Veterinary College Tirupati, A.P. (Nov. 21-23, 2007)
- Suresh Kumar and Daya Shanker (2007). Haematological changes during pre and post treatment with acaricides in naturally tick infested goats. National seminar on emerging diseases of small ruminants and their containment under WTO regime. CIRG, Makhdoom, Mathura & CSWRI, Avikanagar, Rajasthan (Feb. 3-5, 2007)
- Daya Shanker, RP Pandey and B. Singh (2007). Surgical removal and identification of round worm from the eyes of horse-

- A case report. XVIII Natl. Cong. Vety. Parasitology. Faculty of Veterinary Sciences and Animal Husbandry, Sher-e-Kashmir University of Agri & Tech, RS Pura, Jammu (Sep. 7-9, 2007)
- Beenu Sachan, Sunita Sharma, Daya Shanker and RD Agrawal (2007). Comparative efficacy of fenbendazole and *Azadirachia indica* (Neem) against bursate worm infection in goats. XVIII Natl. Cong. Vety. Parasitology. College Vet. Sci. & Anim. Husb. Sher-e-Kashmir University of Agri & Tech, RS Pura, Jammu (Sep. 7-9, 2007)
- Govind Yadav, Ravindra Sharma, BC Pal and SK Yadav (2007). Detection of antibodies against nonstructural protein of Foot and mouth disease in vaccinated animals (water buffalo). Symposium on vaccinology and antiviral therapeutics (VAT2007). IVRI, Mukteswar (Dec. 17-18, 2007).
- L.N. Gupta, B Bist, and U Jain (2007). Bacterial contamination in fish meat collected from different localities of Mathura city. Annual conference of IAVPHS, C.O.V.Sc. & A.H., Anand Agriculture University, Anand (Nov. 29-30, 2007).
- S.K. Yadav, U Jain, CP Singh and BC Pal (2007). Some epidemiological observations of FMD in small ruminants. National seminar on emerging diseases of small ruminants and their containment under WTO regime at CIRG, Makhdoom. (Feb. 03-05, 2007).
- V. Yadav and B Bist (2007). Prevalence of *E.coli* in Poultry meat and their antibiogram. VI Annual conference of Indian Association of Veterinary Public Health (IABPHS) and National Symposium on 'Horizons of Veterinary Public Health in arguments Veterinary, Medical and Environment Health (Nov. 29-30, 2007).
- A.K. Bhatia (2008). *Mycobacterium bovis* as Zoonotic Threat. Global Meet on Veterinary Public Health & symposium on New horizons in food security with special reference to veterinary Public health & Hygiene- evolving strategies with global perspective. (Feb. 19-21, 2008)
- A.K. Bhatia, A. Goel, A.K. Dhakarey, R.K. Srivastava and S.K. Dash (2008). Studies on isolation and identification of Mycobacteria from bovines and human with reference to molecular characterization. Global Meet on Veterinary Public Health & symposium on New horizons in food security with special reference to veterinary Public health & Hygiene- evolving strategies with global perspective. (Feb. 19-21, 2008)
- P. Mishra, S.V. Singh, A.K. Bhatiya, P.K. Singh, A.V. Singh and J.S. Sohal (2007). Real time estimates of prevalence of Bovine Johne's disease in dairy cattle herds in Mathura region of North India using fecal culture and indigenous ELISA kit and characterization of Mycobacterium avium subspecies paratuberculosis by IS900 PCR (140E). National symposium on Advances in Pathological Techniques in Diagnosis of Animal, Bird and Fish diseases and XXI annual conference of Indian Association of Veterinary Pathologists, Department of Veterinary Pathology, Faculty of Veterinary and Animals Sciences, W.B.U. of Animals and Fishery Sciences, Kolkata. (Nov. 23-25, 2007)
- S. Hazra, A.K. Srivastava and S.V. Singh (2007). Experimental paratuberculosis in young kids- serological and pathomorphological studies. National seminar and workshop on Johne's disease, IVRI, Izatnagar. (Aug. 8-9, 2007)
- S. Hazra, A.K. Srivastava and S.V. Singh (2007). Diagnosis of Para tuberculosis in goats. National seminar and workshop on Johne's disease, IVRI, Izatnagar. (Aug. 8-9, 2007)
- S.V. Singh, P.K. Singh, A.V. Singh, J.S. Sohal and A. K. Srivastava (2007). Comparative efficacy of indigenous 'Inactivated vaccine' using field strain of *M. avium* paratuberculosis Bishon type' with a commercial vaccine for the control of Capri paratuberculosis in India: a challenge trail. 9th IC Para Inter Colloquium, Japan. (October 28- November 4, 2007)
- Vinod K Verma, Atul Saxena, S. Yadav, Adesh K., Alok K Verma, Satendra K Bhati (2008). Effect of retrieval methods, CL and oocyte recovery from buffalo slaughter house ovaries. 17th annual conference of SAPI and national symposium on current concept in productivity management in livestock and poultry environment, nutrition and stress. GBPUAT, Pantnagar. (Feb 7-9, 2008)
- Ajay Prakash and G. Chandra (2008). Gut associated lymphoid tissue in the small intestine of goat. XXIII Annual Convention of IAVA and National Symposium, Department of Anatomy, Veterinary College Hisar, Haryana. (Nov. 5-7, 2008)
- M.M. Farooqui, Chandra Pal, Ajay Prakash and R.S. Katiyar (2008). Histological and histochemical studies on the vas deferens of prenatal goat. XXIII Annual Convention of IAVA and National Symposium, Department of Anatomy, Veterinary College Hisar, Haryana. (Nov. 5-7, 2008)
- Ajay Prakash, R.S. Katiyar and M.M. Farooqui (2008). Anatomy of mammary system in bovine and its importance in controlling infection. 4th Convention of U.P. chapter of ISVS and Seminar, Pt. Pandit Deen Dayal Upadhyay Pashu Chikitsa Vigyan Vishwavidhyalaya, Mathura. (October 18, 2008)



- M.M. Farooqui, Chandra Pal, Ajay Prakash and R.S. Katiyar. (2008). Histological and histochemical studies on the vas deferens of prenatal goat (*Capra hircus*). XXIII Annual Convention of IAVA and National Symposium, Department of Anatomy, Veterinary College Hisar, (Nov. 5-7, 2008)
- Archana Pathak, R.S. Katiyar, D.N. Sharma and M.M. Farooqui. (2008). Correlative Anatomy of testes and epididymis in Gaddi goat (*Capra hircus*). XXIII Annual Convention of IAVA and National Symposium, Department of Anatomy, Veterinary College Hisar, Haryana. (Nov. 5-7, 2008)
- \*Soumen Choudhury, Thakur Uttam Singh, Satish Kumar Garg. (2008). Cellular coupling of BKCa channels with B2 receptors in mediating myometrial relaxation in non-pregnant buffalo.
- \*Thakur Uttam Singh, Satish Kumar Garg and Santosh Kumar Mishra. (2008). Effect of Docosahexaenoic acid (DHA) on Na<sup>+</sup>-K<sup>+</sup>-ATPase activity in ovine pulmonary artery.
- \*M. Jayanthi and Satish.K. Garg. (2008). Evaluation of certain pharmacological activities of *Moringa oleifera* leaves extract.
- \*Atul K. Baranwal, Satish K. Garg and Kapilesh M. Varshney. (2008). *Moringa oleifera* flowers extract induced changes in production performance and haematological parameters in broiler chicks.
- \*M. Jayanthi, M.M. Farooqui and Satish K. Garg. (2008). Effect of *Moringa oleifera* leaves extract (MOLE) on histoarchitecture of certain vital organs of mice.
- \*VIII Annual Conference of ISVPT and National Symposium on Medicinal Plants and Wildlife, Mathura (Nov. 6-8, 2008)
- B.C Pal, U Jain and MR Ul-Islam (2008). Latest trends in diagnosis of mycoplasma infections in animals. World Buiatrics Congress, Budapest, Hungary (July 6-10, 2008).
- Amit Kumar Verma, B. C. Pal, S. K. Yadav, C. P. Singh and Udit Jain (2008). Studies of the outbreaks of foot and mouth disease in Uttar Pradesh, India, between 2000 and 2006. in 8th Indian Veterinary congress and XV annual conference of IAAVR & National Symposium, West Bengal University of Animal & Fisheries Sciences, Kolkata (22-24 february, 2008)
- S.K. Yadav (2008). Foot and mouth disease virus molecular detection in north Indian state. In NZMS conference 2008 'Germs and genomes in the garden city' held at NZMS New Zealand.
- B.C. Pal, B. Gupta and U. Jain (2008). Characterization of *Mycoplasma capricolum* subsp. capripneumoniae with SDS Page and Western Blot. 17th IOM congress of the IOM, Tianjin, China (July 11, 2008)
- H S Lambey, Amit Kumar Verma, Mahima, C.P.Singh and Basanti Bist (2008). Bacteriological quality of chevon and pork in Mathra city, VIII Indian Veterinary Congress, 2008, West Bengal University and Fishery Sciences, Kolkata.
- V Gupta, B Bist & U Jain (2008). Prevalence of Hydatidosis in Sheep & Buffaloes in and around Agra & Mathura. 7th annual conference of IAVPHS and international symposium on food safety and quality assurance and global trade: concerns and strategies organized by dept. of VPH, COVSc. & A.H., GBPUAT, Pantnagar, Uttarakhand (Nov. 07-09, 2008).
- U Jain and B Bist (2008). Screening of apparently healthy cows suspected for brucellosis by rose bengal plate test (RBPT) & serum tube agglutination test. 7th Annual Conference of IAVPHS and International Symposium on Food Safety and Quality Assurance and Global Trade: Concerns and Strategies Organized. COVSc. & A.H., GBPUAT, Pantnagar, Uttarakhand (Nov.07-09, 2008).
- U Jain & B Bist (2008). MPN coliform test for assessing bacteriological quality of Drinking water sources in and around Mathura Dist. Global meet on veterinary public health. Lucknow (Nov. 19-21, 2008).
- U. Jain and BC Pal (2008). Epidemiological of mycoplasmal pneumonia in goats of India. Epidemiology of mycoplasmal pneumonia in goats of India. 17th IOM congress of the IOM, at Tianjin, China (July 11, 2008)
- A. Goel, D.K. Singh and A.K. Bhatia (2008). Effect of *Ocimum sanctum* extract on regulation of IFN- $\gamma$  and IL-10 cytokines and their mRNA expression. Symposium on Current Advanced in Molecular Biotechnology: Application in Health, Environment & Agriculture, Lucknow University, Lucknow. (Dec. 28-30, 2008)
- A. Goel, S.K. Singh, Sandeep Kumar, and A.K. Bhatia (2008). Immuno modulating property of *Ocimum sanctum* by regulating the IL-2 production and its mRNA expression from splenic lymphocytes in rats. Conference on Emerging infectious Diseases of animal and biotechnological Applications, Madras Veterinary College, Chennai, India. (July 28-29, 2008)

- A.K. Srivastava (2008). Role of cytokines in health and disease. Silver Jubilee Annual Conference of IAVP, IVRI, Izatanagar (Nov. 10-12, 2008)
- Krishna Kant Tripathi, A.K. Srivastava and Sanjiv Kumar (2008). Effect of *Ocimum sanctum* in experimental fowl cholera in chicken. Silver Jubilee Annual Conference of IAVP, IVRI, Izatanagar (Nov. 10-12, 2008)
- Dinesh Kumar, A.K. Srivastava and Sanjiv Kumar (2008). Quantitative assay of heavy metal poisoning of arsenic poisoning in experimental guinea pigs. Silver Jubilee Annual Conference of IAVP, IVRI, Izatanagar (Nov. 10-12, 2008)
- Dinesh Kumar, A.K. Srivastava and Sanjiv Kumar (2008). Effect of arsenic poisoning on antioxidative enzymes in experimental guinea pigs. Silver Jubilee Annual Conference of IAVP, IVRI, Izatanagar (Nov. 10-12, 2008)
- Vinod K Verma, Atul Saxena, S. Yadav Adesh K., Alok K Verma, Satendra K Bhati (2008). Effect of retrieval methods, CL and oocyte recovery from buffalo slaughter house ovaries. 17th annual conference of SAPI and national symposium on current concept in productivity management in livestock and poultry. GBPUAT, Pantnagar. (Feb.7-9, 2008)
- Jayant Kumbhakar, Jinteder Kumar and M P Agrawal (2008). Alteration in the biochemical indices in barbari goats following exogenous melatonin treatment. 17th Annual Conference of SAPI and National Symposium on current concept in productivity management in livestock and poultry. GBPUAT, Pantnagar. (Feb.7-9, 2008)
- M.Tiwari, H.N.Singh, A.Bhattacharyya and M.M.Goswami (2008). Effect of probiotic and herbal supplement on feed conversion ratio, development of digestive organs and carcass quality traits of commercial broilers. VIII Annual Conference of ISVPT and National Symposium on Medicinal Plants and Wildlife. Mathura (Nov. 6-8, 2008)
- M.Tiwari, H.N.Singh, A.Bhattacharyya and M.M.Goswami (2008). Effect of probiotic and herbal supplement on growth and immuno competence traits of commercial broilers. VIII Annual Conference of ISVPT and National Symposium on Medicinal Plants and Wildlife. Mathura (Nov. 6-8, 2008)
- A.Bhattacharyya, S.Majumdar, S.K.Bhanja, B.B.Dash and M.M.Kadam (2008). Response to maternal, in ovo and conventional New Castle Disease vaccination in turkey poult. IPSACON, Anand. (Dec 10-12,2008)
- Rashmi Singh, Sharad Yadav and A.K. Bhatia (2009). Seroprevalance of Bovine Herpes Virus -1 in U.P. X National Technical Seminar of IALV, College of Veterinary Science & Animal Husbandry, Jabalpur. (Jan. 29-31, 2009)
- Jayanti, A.K. Bhatia and Amit K. (2009). Immunomodulatory effect of *O. sanctum* (Tulsi) in chicken. X National Technical Seminar of IALV held at College of Veterinary Science & Animal Husbandry, Jabalpur. (Jan. 29-31, 2009)
- C. Sinha, S Yadav, and D Kranti (2009). Effect of enrofloxacin on seminal attributes of Barbary buck. National symposium on livestock biodiversity conservation and utilization: Lesson from past and future perspectives. (Feb. 12-13, 2009)
- C Sinha, S Yadav, and D Kranti (2009). Effect of enrofloxacin on transaminase activity in seminal plasma of Barbary buck. 18th Annual Conference of SAPI. (Feb. 26-28, 2009)
- B. Yadav, J. P. Korde, S. K. Rastogi, Umapati V., Sujatha V. and A K Madan (2009). *In-Vitro* evaluation of antioxidative potential of aqueous extract of *Mentha piperita* by electron transfer reaction assays. 18th Annual Conference of SAPI. (Feb. 26-28, 2009)
- \* D.K. Swain, S. Yadav, B. Yadav, J. Kumar and M. Anand (2009). Neuroendocrine responses of the animals to stress.
  - \* Brijesh Yadav (2009). Research agenda for mitigating adverse effect on reproduction in livestock due to heat stress.
  - \* Amit K Verma, Amit Kumar, Neeraj K Gangwar and Mahima (2009). Veterinary Practices: need to combat climatic effects on livestock.
  - \* Amit Kumar, Amit K. Verma and Neeraj K Gangwar (2009). Effect of extreme climate on productivity and reproductivity of cattle.
  - \* Anuj Kumar, Atul Saxena and Amit K. Verma (2009). Effect of Climate change on reproduction in livestock.
  - \* National seminar on Dimensions of climatic change affecting education and research agenda for livestock health and production and National Colloquy on Quality deliverance of new undergraduate Veterinary course curriculum, DUVASU, Mathura (Sept. 24-25, 2009)
- Ajay Prakash, G. Chandra, M.M. Farooqui and Archana Pathak (2009) Histochemical observations on the intestine of goat. XXIV Annual Convention of IAVA and International Congress on Veterinary Anatomy, Lucknow. (Nov.4-6, 2009)
- M.M. Farooqui, Chandra Pal, Archana Pathak and Ajay Prakash (2009). Differentiation of intra tubular and inter tubular cells in the testis of pre natal goats (*Capra hircus*). XXIV Annual Convention of IAVA and International Congress on Veterinary Anatomy, Lucknow. (Nov.4-6, 2009)

- Archana Pathak, R.S. Katiyar, D.N. Sharma, M.M. Farooqui, and Ajay Prakash (2009). Postnatal development of bulbourethral gland in Gaddi goat (*Capra hircus*). XXIV Annual Convention of IAVA and International Congress on Veterinary Anatomy, Lucknow, (Nov.4-6, 2009)
- Prabhakar Kumar, G.K. Singh and RS Chauhan (2009). Blastogenic activity of lymphocytes isolated from thymus of developing stages of chicks. XXIV Annual Convention of IAVA and International Congress on Veterinary Anatomy, Lucknow. (Nov.4-6, 2009)
- Varsha Gupta and Ishwar Singh (2009). Light and ultrastructural studies on the erythrocytes of Guinea fowl (*Numida meleagris*). XXIV Annual Convention of IAVA and International Congress on Veterinary Anatomy, Lucknow. (Nov.4-6, 2009)
- Jitendra Tiwari, Beenu Sachan and Daya Shanker (2010). Efficacy of Argemone mexicana leaves extract against Helminthic infection in sheep. XXth National Congress of Veterinary Parasitology on "Parasitology Today Ecology to Molecular Biology", (Feb 18-20, 2010)
- Daya Shanker, Jitendra Tiwari and Beenu Sachan (2010). Study of gastrointestinal helminthosis in different ruminant animals of Mathura district of U.P. XXth National Congress of Veterinary Parasitology on "Parasitology Today Ecology to Molecular Biology", (Feb 18-20, 2010)
- Sanjeev K. Singh and Susheel Kumar (2009). Information kiosk. National Seminar on Rural India developmental alternatives - sectoral convergence for livelihood security, CIRG, Makhdum, (Jan. 16-18, 2009)
- Amit Singh, Susheel Kumar and Sanjeev Ku Singh (2009). Entrepreneurial behavior of Self Help Group members. A step towards sustainable livelihood. Vth National Seminar Extension Education Congress. (March 5-7, 2009)
- Sanjeev Ku Singh, Amit Singh and Susheel Kumar (2009). Farmers friendly touch screen informative kiosks. Vth National Seminar Extension Education Congress. (March 5-7, 2009)
- \*Bharshib Chandrabhan, S.K. Garg and Rajesh Mandil (2009). Studies on anti-inflammatory, analgesic and antipyretic activity of *Nyctanthes arbortristis* flower extract (N<sub>A</sub>FE).
- \*Thakur Uttam Singh, Kathirvel Kandaswamy, S. Choudhury, S.K. Garg and Santosh Kumar Mishra (2009). Molecular profile of Na<sup>+</sup>-K<sup>+</sup>-ATPase  $\mu$ -1 isoform and its modulation by Eicosapentaenoic acid in ovine coronary artery.
- \*B.R. Nigam, Atul Saxena and S.K. Garg (2009). Biomonitoring of metallic pollutants in blood of cows and buffaloes of Mathura.
- \*S.K. Garg and Atul Prakash (2009). Future strategies for the development of newer chemotherapeutic agents.
- \*Thakur Uttam Singh, S. Choudhury, Kathirvel Kandaswamy, S.K. Garg and Santosh Kumar Mishra (2009). Molecular profile of na<sup>+</sup>-k<sup>+</sup>-atpase -1 isoform and its modulation by docosahexaenoic acid in ovine coronary artery.
- \*R.K. Yadav, S.K. Garg, Anu Rahal and Rajesh Mandil (2009). Disposition kinetics of ofloxacin following single IV bolus dose in goats. (2009).
- \*S. Choudhury, Suresh Pal and S.K. Garg (2009). Putative role of c-AMP in KATP channel-dependent tocolysis in buffaloes.
- \*Atul Prakash, Saleem Khan, A.G. Telang and J.K. Malik (2009). Quercetin attenuates arsenic and chlorpyrifos-mediated inhibition of acetylcholinesterase activity in rats.
- \*J.K. Malik, G.S. Rao, Atul Prakash, M. Aggarwal, A.K. Gupta, S.K. Bhavsar and A.M. Thaker, (2009). Applications of Pharmacokinetic approaches in tissue residue depletion in food producing animals.
- \*J.K. Malik, A.G. Telang, S. Kalpana, D. Kumar, Atul Prakash, S. Khan, and A.K. Tiwari (2009). Assessment of arsenic induced apoptosis in sheep peripheral blood mononuclear cells *in vitro*.
- \*S. Khan, A. Prakash, A.G. Telang and J.K. Malik (2009). Exposure to low levels of arsenic modifies parameters indicative of oxidative stress in epididymis of rats.
- \*IXth Annual conference of Indian Society of Pharmacology and Toxicology (ISVPT) and National Symposia on "Xenobiotic residue and food safety" and Pharmacogenomics and Toxicogenomics: New Horizons in Veterinary Pharmacology and Toxicology, AAU, Anand. (Nov. 5-7, 2009)
- A. Prakash, S. Khan, M. Aggarwal, A.G. Telang and J.K. Malik (2009). Chlorpyrifos induces apoptosis in murine thymocytes. 46th Congress of European Societies of Toxicology, Dresden, Germany. (Sept. 13-16, 2009)
- A. Prakash, S. Khan, M. Aggarwal, C.R. Majhi, A.G. Telang and J.K. Malik (2009). Experimental exposure of arsenic

- induces apoptosis in murine splenocytes. 46th Congress of European Society of Toxicology, Dresden, Germany. (Sept. 13-16, 2009)
- Neelam Sachan (2009). Effect of climatic changes on prevalence of zoonotic diseases. National Seminar on Dimension of climate change affecting education and research agenda for livestock health and production and colloquy on quality deliverance of new undergraduate veterinary course curriculum, DUVASU, Mathura. (Sep. 24-25, 2009)
- Jayati, S.S. Chauhan, A.K. Bhatia and Amit Kumar (2009). Antibacterial properties of aqueous extract of dried leaves of *Ocimum sanctum*. IX Ind. Vety. Congress and XVI Ann. Conf. of IAAVR & National Symp. Mumbai
- Amit Kumar, S.K. Dwivedi, and M.K. Gupta (2009) Adverse Climate: a cause of mastitis. National Seminar on Dimension of climate change affecting education and research agenda for livestock health and production and colloquy on quality deliverance of new undergraduate veterinary course curriculum, DUVASU, Mathura. (Sep. 24-25, 2009)
- Anu Rahal and Amit Kumar (2009). Women's Tool towards Family Health. Xth Ann. Convention of Indian Association of Lady Veterinarians and National Symposium, Jabalpur (Jan. 29-31, 2009).
- Anu Rahal and Amit Kumar (2009). Tulsi: A miracle herb in the hands of traditional house lady. Xth Ann. Convention of Ind. Assoc. of Lady Veterinarians and National Symposium, Jabalpur (Jan. 29-31, 2009).
- Amit Kumar, A.K. Verma, and N.K. Gangwar (2009). Effects of Extreme Climate on Productivity & Reproductivity of Cattle. National Seminar on Dimension of climate change affecting education and research agenda for livestock health and production and National colloquy on quality deliverance of new undergraduate veterinary course curriculum, DUVASU, Mathura. (Sep. 24-25, 2009)
- N.K. Gangwar, A.K. Srivastava, A. K. Verma, Amit Kumar and S. Srivastava (2009). Policies to reduce the effect of climatic changes over livestock production. National Seminar on Dimension of climate change affecting education and research agenda for livestock health and production and National colloquy on quality deliverance of new undergraduate veterinary course curriculum, DUVASU, Mathura. (Sep. 24-25, 2009)
- Neelam Sachan and VP Singh (2009). Issues related to women empowerment in India. National symposium on contribution of women veterinarians in upliftment of livestock production through new technologies. C.V.Sc.&A.H., Jabalpur (Jan. 29-31, 2009).
- Basanti Bist and Neelam Sachan (2009). Role of women in environmental conservation in 21st century. National symposium on contribution of women veterinarians in upliftment of livestock production through new technologies. C.V.Sc.&A.H., Jabalpur (Jan. 29-31, 2009).
- A. K. Verma, Amit Kumar, N.K. Gangwar and Mahima (2009). Veterinary practices: need to combat climatic effects on livestock. National Seminar on Dimension of climate change affecting education and research agenda for livestock health and production and National colloquy on quality deliverance of new undergraduate veterinary course curriculum, DUVASU, Mathura. (Sep. 24-25, 2009)
- Krishna Kant Tripathi, A.K. Srivastava and Sanjiv Kumar (2009) Immunomodulatory effect of *Ocimum sanctum* in birds. XXVII Annual Conference of IAVP, GADVASU, Ludhiana (Oct. 28-30, 2009)
- Satish Chandra, A.K. Srivastava and Sanjiv Kumar (2009). Pathomorphological studies of lead toxicity in experimental rats. XXVII Annual Conference of IAVP, GADVASU, Ludhiana. (Oct. 28-30, 2009)
- Satish Chandra, A.K. Srivastava and Sanjiv Kumar (2009). Quantitative assay of lead in tissues of experimentally poisoned rats. XXVII Annual Conference of IAVP, GADVASU, Ludhiana. (Oct. 28-30, 2009)
- Dinesh Kumar, A.K. Srivastava and Sanjiv Kumar (2009). Haematobiochemical changes in chronic arsenic poisoning in experimental guinea pigs XXVII Annual Conference of IAVP, GADVASU, Ludhiana. (Oct. 28-30, 2009)
- N.K. Gangwar, Sanjiv Kumar, A.K. Srivastava and R.P. Pandey (2009). Cryptorchid seminoma in a dog- case report. XXVII Annual Conference of IAVP, GADVASU, Ludhiana, (Oct. 28-30, 2009)
- A.K. Srivastava, Sanjiv Kumar, and R.P. Pandey (2009). A case report of spindle cell lipoma in buffalo. XXVII Annual Conference of IAVP, GADVASU, Ludhiana. (Oct. 28-30, 2009)
- Sanjiv Kumar, A.K. Srivastava, N.K. Gangwar and Deepesh. (2009). Squamous cell carcinoma in mule- case report. XXVII Annual Conference of IAVP, GADVASU, Ludhiana. (Oct. 28-30, 2009)
- A.K. Srivastava (2009). Pathology and diagnosis of dropsy syndrome in animals and birds. XXVII Annual Conference of IAVP, GADVASU, Ludhiana. (Oct. 28-30, 2009)
- A.K. Srivastava (2009). Veterinary Education in India-issues and strategies. National Seminar on dimensions of climate

- change affecting education and research agenda for livestock health and production and National colloquy on quality deliverance of new undergraduate veterinary course curriculum, DUVASU, Mathura. (Sep. 24-25, 2009)
- Sanjiv Kumar, A.K. Srivastava, N.K. Gangwar, and S.K. Verma (2009). Impact of climatic changes on health of animals. National Seminar on dimensions of climate change affecting education and research agenda for livestock health and production and National colloquy on quality deliverance of new undergraduate veterinary course curriculum, DUVASU, Mathura. (Sep. 24-25, 2009)
- Neeraj Kumar Gangwar, R. Somvanshi, Rajendra Singh, Meena Kataria and Pritee Gangwar (2009). Pathological effect of *linguda (Diplazium esculentum)* in guinea pigs. International Symposium on philosophy of disease diagnosis through morphological to biomolecular approaches and core theme 'Diagnostic Pathology, GADVASU, Ludhiana. (Oct. 28-30, 2009)
- C. Sinha, S. Yadav, B. Yadav and K.D. Singh (2010). Residual effects of Enrofloxacin administration on seminal attributes of the semen of Barbari bucks. National seminar on Stress Management in Small Ruminant Production and Product Processing, Central Sheep and Wool Research Institute, Avikanagar. (January 29-31, 2010)
- Amit Kumar Verma, Amit Kumar, Mahima and B. C. Pal. (2010). Use of the Reverse Transcription Polymerase Chain Reaction (RT-PCR) for the diagnosis of Foot and Mouth Disease. Xth Ind. Vety. Cong. & XVIIth Ann. Conf. Of IAAVR and Nat. Symp. on Newer Challenges in Vety. Res. & Edu. Vis-vis safe animal, food and human health. Jabalpur. (March 11-12, 2010)
- Amit Kumar, Amit Kumar Verma and Veer Pal Singh (2010). Bacteriological status of chicken meat in Mathura and its surroundings. Xth Ind. Vety. Cong. & XVIIth Ann. Conf. of IAAVR and Nat. Symp. on Newer Challenges in Vety. Res. & Edu. Vis-vis safe animal, food and human health. Jabalpur. (March 11-12, 2010)
- A.K.Verma, S.K.Yadav, Mahima, Amit Kumar and B.C.Pal. (2010). 3ABC non-structural protein for differentiation of Foot-and Mouth disease infected and vaccinated animals in Uttar Pradesh. National Symposium on recent developments in diagnostic and therapeutic approaches for economically important diseases of livestock and companion animals and XXVIIIth Ann. Conv. of ISVM, Hyderabad. (Feb. 17-19, 2010)
- Amit Kumar, Anu Rahal, S. K. Dwivedi and Manoj K. Gupta (2010). Bacterial mastitis: prevalence and antibiotic resistance in cattle and buffaloes in Mathura. Int. Conf. on protecting animal health: Facilitating trade in livestock and livestock products & XXIVth Ann. Conv. of IAVMI, Raipur. (Jan. 27-29, 2010)
- Neeraj K Gangwar, A. K. Srivastava, Upendra Kumar and S.K. Verma (2010). Collection, preservation and dispatch of morbid material for laboratory diagnosis and post mortem examination of vetrolegal cases. National seminar on Recent advancements on diagnosis of diseases in livestock and poultry, DUVASU, Mathura. (Feb. 20, 2010)
- Sanjiv Kumar and A.K. Srivastava (2010). Arsenic toxicity in animals. National seminar on Recent advancements on diagnosis of diseases in livestock and poultry, DUVASU, Mathura. (Feb. 20, 2010)
- Sanjiv Kumar, A.K. Srivastava and Santosh K. Verma (2010). Infectious bursal disease- Method of virus identification. National seminar on Recent advancements on diagnosis of diseases in livestock and poultry, DUVASU, Mathura. (Feb. 20, 2010)
- Sanjiv Kumar, A.K. Srivastava and Santosh K. Verma (2010). Avian influenza- A dreaded disease in animals. National seminar on Recent advancements on diagnosis of diseases in livestock and poultry, DUVASU, Mathura. (Feb. 20, 2010)
- Santosh K. Verma, A.K. Srivastava and Sanjiv Kumar (2010). Antigen detection technique. National seminar on Recent advancements on diagnosis of diseases in livestock and poultry, DUVASU, Mathura. (Feb. 20, 2010)
- K.K. Tripathi, A.K. Srivastava and Sanjiv Kumar (2010). Molecular diagnosis of avian pasteurellosis. National seminar on Recent advancements on diagnosis of diseases in livestock and poultry, DUVASU, Mathura. (Feb. 20, 2010)
- Sanjiv Kumar and A.K. Srivastava (2010). Caecal coccidiosis in poultry. National seminar on Recent advancements on diagnosis of diseases in livestock and poultry, DUVASU, Mathura. (Feb. 20, 2010)
- A. Prakash, S. Khan, Telang, A.G. Telang and J.K. Malik (2010). Modulation of chlorpyrifos-induced apoptosis in murine thymocytes by resveratrol. In, International Symposium on Current Trends in Drug Discovery Research, CDRI, Lucknow. (Feb. 17-21, 2010)

**C. Extension Publications**

Daya Shanker (2008) - Education technology in teaching of Veterinary Parasitology, Role of establishment of education technology cells in state agriculture universities, NAARM, Hyderabad (Oct 18-20, 2007) p. 71-75.  
 R.P. Pandey and Deepesh Kumar (2009) - Some clinical procedure and diagnostic technique in small animal veterinary practice. In: Advances in livestock production and management. Edn first. CIRG. pp 151-158  
 V.P. Singh and Neelam Sachan (2009) Role of milk ingredients in bakery industry. Processed Food Industry, pg. 43-45.  
 V.P. Singh and Neelam Sachan (2010). Organic milk: New era with old concept. *Processed Food Industry*, 13 (3);29-34.  
 V.P. Singh and Neelam Sachan (2010). Quality assurance of milk and milk products. *Agrovet Buzz*, 2 (4); 32-36.

*Beside these, several popular articles have been published in DUVASU "Pashudhan Patrika" and "Brij me Krishi Evam Pashupalan (KVK, DUVASU Magazine) by the faculty members of the University.*

**XIV. RIGHT TO INFORMATION ACT**

Government of India enforced the Right to Information Act after clearing through parliament on 12 June, 2005 with the objective of providing good governance with transparency in work without corruption. In compliance of the order of Govt. of U.P. and provision of R.T.I. Act 2005, RTI Cell was established in the University. Following Officers of the University have discharged the duty as PIO during the periods under report:

Dr. S.N. Shukla, Deptt. of A.G. & Breeding	15.02.2007	30.06.2008
Dr. H.N. Singh, Deptt. of A.G. & Breeding	01.07.2008	23.04.2009
Dr. V.K. Singh, Deptt. of A.G. & Breeding	24.04.2009	Continuing

Year wise number of applications received and their disposal position is presented here:

<b>Year</b>	<b>Application received</b>	<b>Cleared</b>
2007-08	37	37
2008-09	99	96
2009-10	40	39

University organized the RTI week w.e.f. 12 Oct.-19 Oct, 2009. During this week, the office of PIO organized the program for awareness about RTI amongst the students, officers, teachers and employees of the University and Dr. S.K. Sadana of NBAGR, Karnal was the Chief Guest during this programme.

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**Printed by : Co-ordinator**

Printing & Publication Division  
DUVASU - Mathura

**Chief Editor : Dr. Satish K. Garg**, Dean, College of Veterinary Science & A.H.

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**Photo Support : Mr. Braj Mohan & Mr. H. M. Rawat**

**Printed by : Kiran Computers & Printers**, Aurangabad - Mathura (Mb. : 9837784288)